

FACT SHEET FOR THE PHASE I, WESTERN WASHINGTON PHASE II, AND EASTERN WASHINGTON PHASE II MUNICIPAL STORMWATER PERMITS

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND
STATE WASTE DISCHARGE GENERAL PERMIT
FOR DISCHARGES FROM
SMALL, MEDIUM, AND LARGE MUNICIPAL SEPARATE STORM
SEWER SYSTEMS IN WASHINGTON STATE**

AUGUST 16, 2023



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¹ <https://ecology.wa.gov/About-us/Accessibility-equity/Accessibility>

1.0 Introduction

This Fact Sheet accompanies the draft National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge Permits for Discharges from (Large, Medium, and Small) Municipal Separate Storm Sewers for Western and Eastern Washington (the Phase I, Western Washington, and Eastern Washington Phase II Permits). The Fact Sheet serves as the documentation of the legal, technical, and administrative decisions Ecology has made in the process of reissuing the Permits.

On July 1, 2019, Washington Department of Ecology (Ecology) issued the current (2019) Municipal Stormwater Permits (Permits). The current Permits have an effective date of August 1, 2019, and expire on July 31, 2024.

As required by Section 402(p)(3) of the Clean Water Act, discharges covered under these Permits must effectively prohibit non-stormwater discharges into municipal separate storm sewer systems (MS4) that discharge to surface waters and must apply controls to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP). As authorized by RCW 90.48.030 and RCW 90.48.162, Ecology also takes action through these Permits to control impacts of stormwater discharges to all waters of Washington State, including ground waters, unless the discharges are authorized by another regulatory program.

Discharges from agricultural runoff, irrigation return flows, process and non-process wastewaters from industrial activities, and stormwater runoff from areas served by combined sewer systems are not regulated directly by these Permits. These types of discharges may be regulated by local or other state requirements if they discharge to MS4s. These Permits authorize the MS4 to discharge stormwater that comes from construction sites or industrial activities under certain conditions.

This Fact Sheet addresses the revised and updated Phase I, Western and Eastern Washington Phase II Permits. You may download copies of the draft Permit documents at the [Municipal Stormwater Permit Reissuance](https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Municipal-stormwater-general-permits/Municipal-stormwater-permit-reissuance)² page.

² <https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Municipal-stormwater-general-permits/Municipal-stormwater-permit-reissuance>

1.1. Municipal Stormwater General Permits in Washington State

Ecology issued the first Phase I Municipal Stormwater Permits in 1995 and reissued a general permit in 2007, 2013, and 2019 to cover the cities of Seattle and Tacoma, and Snohomish, King, Pierce, and Clark counties. The Phase I federal rule established the list of Phase I jurisdictions, and no new jurisdictions will be added to this list.

EPA issued the federal rule for Phase II of the stormwater permit program in 1999. In 2007, Ecology issued the first Phase II Municipal Stormwater General Permits. Ecology reissued the Phase II Municipal Stormwater Permit for Western Washington and Eastern Washington in 2013 and 2014, respectively and again in 2019.

A number of Phase II Permittees in western Washington are located in counties regulated by the Phase I Permit, or are adjacent to the cities of Seattle and Tacoma. Phase I and Phase II Permittees share basins, have interconnected conveyance systems, and discharge into many of the same water bodies. Phase I and Phase II communities cooperated in a number of permit programs and grant projects, and worked together through coordination groups.

In eastern Washington there are no Phase I Permittees, and thus no interconnected stormwater systems of Phase I and Phase II Permittees. A number of eastern and southwestern Washington Permittees, both Phase I and Phase II, discharge into the Columbia River. Permittees that discharge to tributaries of the Columbia coordinate within those smaller basins. Eastern Washington Permittees coordinate informally with Permittees in western Washington – and vice versa. During the current (2019) Permit terms, Ecology funded several partnerships of eastern and western Washington Permittees to complete stormwater studies or projects that benefit Permittees statewide.

MS4s may also be public stormwater systems similar to those in municipalities, such as systems at colleges and universities, state institutions, and special purpose districts. Ecology uses the term Secondary Permittees to refer to these entities. Special purposes districts may include ports, diking and drainage districts, school districts, park districts, irrigation districts, and state institutions. The MS4s of Secondary Permittees are publicly owned or operated and serve more than 1,000 people on an average day. For ports, schools, colleges, and universities the population figures include commuters as well as residents. The Ports of Seattle and Tacoma are covered under the Phase I Permit and have their own permit section.

Wherever appropriate, Ecology coordinated the requirements of the Phase II Permits with the requirements of the Phase I Permit. All Permits include similar approaches to compliance with standards, TMDL implementation, and the use of a regional stormwater manual. Programs for illicit discharge detection and elimination, controlling stormwater from construction sites, operations and maintenance, and MS4 mapping are also similar. In areas where conveyance systems are interconnected or discharges go to the same water body, successful implementation of stormwater management programs requires coordination between local jurisdictions.

2.0 Public Involvement Opportunities

2.1. Public Comment Period

Ecology invites public comments on the proposed draft Permits and Fact Sheet from August 16, 2023 until **11:59 PM on Friday, November 10, 2023**. Ecology welcomes all comments that address the proposed Permit requirements in these formal draft documents.

Ecology will issue the final Permits after it considers all public comments and makes final changes to the draft Permits. Ecology will publish a *Response to Comments* document with the final Permits to address comments submitted during the public comment period.

2.2. Information to Include with Each Comment

A [commenting template](#) is provided for convenience. For Ecology to adequately address comments, please include the following information with each comment:

- The Permit(s) subject to your comment;
- The specific Permit language used in the requirement subject to your comment. Include the page number(s), line numbers, and, where indicated, section reference (i.e., S8.D.2.b);
- A brief, concise comment including the basis for the comment; in particular, the legal, technical, administrative, or other basis for the concern; and
- Suggested Permit language or a conceptual alternative to address your concern.
- Use the voluntary template to organize your comments (linked above).

2.3. How to Submit a Comment

2.3.1. Written Permit and Stormwater Management Manual (SWMM) Comments

Ecology will accept comments until 11:59 PM on Friday, November 10, 2023.

Send written comments regarding the Permits to Ecology by one of the methods below:

- **Preferred:** submit your comments electronically at:
<https://wg.ecology.commentinput.com?id=C57pYMEgb>
- Send by mail to:
Abbey Stockwell
WA Department of Ecology
Water Quality Program
PO Box 47696
Olympia, WA 98504-7696

2.3.2. Oral Comments

Submit oral comments by attending and testifying at the public hearings. (See *Public Hearing and Workshop Schedule* section for more information).

2.4. Public Hearing and Workshop Schedule

Before each public hearing, Ecology will host a general public workshop on the proposed changes in the draft Permits during the public comment period. The workshop will also include information regarding the draft SWMMs.

The workshops provide Ecology an opportunity to explain the proposed changes to the Permits, and to answer questions. Ecology will not accept formal oral testimony or comments on the draft Permits or Fact Sheet during the public workshops but will during the public hearings.

The public hearings will provide an opportunity for the public to give formal comments on the draft Permit. Each hearing will immediately follow a short workshop, including a question-and-answer session.

2.5. Eastern Washington Phase II workshops and hearings

Monday, September 18, 2023, 9:00 AM

Virtual workshop and hearing: [Register](#)

Tuesday, October 3, 2023, 9:30 AM

Moses Lake Civic Center

Council Chambers Room

401 S. Balsam

Moses Lake, WA 98837

Monday, November 6, 2023, 1:30 PM

Virtual workshop and hearing: [Register](#)

2.6. Phase I and Western Washington Phase II workshops and hearings

Monday, September 18, 2023, 1:30 AM

Virtual workshop and hearing: [Register](#)

Wednesday, October 17, 2023, 9:30 AM

Lacey Community Center

6729 Pacific Ave SW, Olympia WA

Monday, November 6, 2023, 9:00 PM

Virtual workshop and hearing: [Register](#)

Please direct requests for printed copies of the Draft Permits, and Fact Sheet, to Water Quality Reception at 360-407-6400.

Please direct questions about the public hearings/workshops, Notice of Intent, the Phase II Draft Permits, or Fact Sheet to Abbey Stockwell, abbey.stockwell@ecy.wa.gov or 360-280-2934.

Please direct questions about the Phase I Draft Permit to Amy Waterman, amy.waterman@ecy.wa.gov or 360-338-5831.

3.0 Issuance of the Final Permits

Ecology will issue the final Permits after reviewing and considering all public comments. Ecology expects to issue the final Permits in July 2024. Ecology will send a copy of the Notice of Issuance to all persons who submitted written comment or gave public testimony at the public hearings.

Ecology will append the final Fact Sheet for the Permits with a summary of and response to comments. Parties submitting comments will receive a notice on how to obtain copies of the final Permits and Ecology's response to comments.

4.0 Permit Reissuance Engagement Opportunities Prior to August 1, 2023

Ecology conducted a number of public involvement processes in preparation for reissuance of the Municipal Stormwater General Permits.

4.1. "Ad-hoc" stakeholder early input

Like the 2019 Permit reissuance process, Permittees, NGOs, and other interested parties organized a series of committee meetings in 2021 with the purpose of developing recommendations for Permit revisions prior to Ecology starting the Permit writing process. The committees formed based on participants' interest in a topic related to Permit requirements (e.g. SMAPs, IDDE, mapping, source control, Annual Reports, etc.). The result was a series of thoughtful recommendations for Permit language improvements or clarifications by nearly every topic covered by the Permits and Stormwater Management Manuals. These recommendations support some of the proposed changes prepared for the preliminary drafts and the final draft Permits.

4.2. Listening Sessions

On June 6 and 13 of 2022, Ecology hosted virtual listening sessions to announce the reissuance schedule and gather input for preparing to reissue the 2024 Permits and concurrent updates to the stormwater management manuals (SWMM) for both eastern and western Washington.

The listening sessions provided an opportunity to:

- Present our preliminary plans for the scope of changes for the 2024 permits and SWMMs.
- Share early input we received from our stakeholders.
- Hear further input on the proposed scope of changes.

During the listening sessions, Ecology accepted email and verbal comments. Ecology posted the listening session presentations on its website and considered these comments as it developed the Permit revisions. (See listening session materials at [Municipal stormwater permit reissuance](#)³)

4.3. Fall 2022 - Spring 2023 Informal Public Comment Period

Following the approach used during the 2019 Permit reissuance process, Ecology provided an additional public review opportunity for initial and early ideas for Permit changes and SWMM updates. From October 17, 2022 to December 2, 2022 and again from February 23- March 23, 2023, Ecology invited informal public comment on preliminary draft Permit language for the following topics:

- Standard Outfall Reporting
- Tree retention – Stormwater Planning or Monitoring and Assessment
- PCBs – Education and outreach, IDDE, Operations and Maintenance
- Sweeping – Operations and Maintenance
- Eastern Washington Effectiveness Studies – Monitoring and Assessment
- Controlling Runoff – Appendix 1
 - Western and Eastern versions.
- Phase I
 - S5.C.7 Structural Stormwater Control and Appendix 12
- Western Washington Phase II
 - Stormwater Controls for Priority Developed Areas (new section)

In addition, Ecology also accepted comments on proposed preliminary changes to the Stormwater Management Manual for Western and Eastern Washington (SWMMWW and SWMMEW). The SWMM preliminary drafts included:

- Table of contents
- Climate change topic
- Stormwater Pollutants topics
- PCB edits to select source control BMPs
- Bioretention BMP updates

The preliminary draft Permit language included explanatory notes documenting Ecology's rationale for the proposed draft permit requirements.

³ <https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Municipal-stormwater-general-permits/Municipal-stormwater-permit-reissuance>

The preliminary draft documents generated a broad response. Ecology received over 100 comments from individuals or entities via email, letters, and an online comment form. This extra step in the public process provided valuable input from a wide range of interested parties. Ecology considered those comments as it developed these proposed draft Permit requirements. The preliminary draft language, explanatory notes, associated documents, and all the comments are available at the [Municipal stormwater permit reissuance](https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Municipal-stormwater-general-permits/Municipal-stormwater-permit-reissuance)⁴ website.

4.4. Structural Stormwater Control Program Stakeholder Process

The Phase I Structural Stormwater Control (SSC) Program (Permit section S5.C.7) is on its fourth iteration in the 2019 permit and requires Permittees to design and construct eligible SSC projects based on a locally developed program that includes a process to prioritize and implement projects.

In 2018, Permittees and stakeholders requested that Ecology establish a stakeholder workgroup to address technical and policy issues related to SSC requirements. Ecology agreed with this recommendation and took a stepwise approach to the stakeholder process to inform the proposed SSC program requirements for the 2024-2029 permit. The stakeholder workgroup began by conducting a review of available scientific information about the relative environmental benefits of SSC project types. This resulted in the preparation of a white paper titled [Structural-Stormwater-Controls-Science-Review-Synthesis](https://www.wastormwatercenter.org/wp-content/uploads/White-Paper_Structural-Stormwater-Controls-Science-Review-Synthesis)⁵ which then informed the next phase of the stakeholder process, which was convening a Policy Advisory Committee to develop recommendations for the 2024 Permits.

The SSC Policy Advisory Committee (SSC PAC) met from May-December 2022 and used the SSC Science Synthesis as a basis to discuss quantifying SSC requirements and the level of effort by permittees implementing SSC programs. This PAC, made up of Phase I and Western Washington Phase II Permittees as well as environmental non-profit representatives, discussed topics including project types, point system, metrics, refinements to Phase I SSC program, and recommendations for a Western Washington Phase II retrofit approach.

The feedback provided gave Ecology insight into the challenges that Phase I Permittees have in implementing the SSC program and highlighted the desire to meet the stormwater challenges western Washington faces. The feedback was used to propose preliminary draft permit language for Phase I SSC and describe a new program for WWA Phase II Permit. The informal comments received on the preliminary drafts were used to inform the formal draft permits.

⁴ <https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Municipal-stormwater-general-permits/Municipal-stormwater-permit-reissuance>

⁵ https://www.wastormwatercenter.org/wp-content/uploads/White-Paper_Structural-Stormwater-Controls-Science-Review-Synthesis-Project.pdf

4.5. Environmental NGOs

Ecology held several meetings with NGOs during the development of the formal draft and after the release of each set of preliminary drafts. These were opportunities to answer questions and take input on concerns from NGOs on draft sections.

4.6. Federal and State Agencies

Ecology had regular communication with EPA at key points in the development of the draft, as well as EPA's release of their draft MS4 permits. Ecology also communicated with the Department of Commerce on planning aspects of the formal draft and with the Department of Natural Resources on tree canopy data and funding programs.

4.7. Tribal Outreach

Ecology shared communication with tribal contacts during the informal permit review and comment periods as well as during the Structural Stormwater Control technical and policy review process. Ecology presented to the water quality group of the Northwest Indian Fisheries Commission.

5.0 Background

5.1. The Stormwater Problem

Stormwater runoff is a leading pollution threat to lakes, rivers, streams, and marine water bodies in urbanized areas of Washington State. The stormwater problem was well defined decades ago, and we continue to learn about sources of pollution to stormwater, the impacts of stormwater on receiving waters and biota across the state, as well as the effectiveness of stormwater management approaches to prevent, reduce, and correct these impacts.

Impacts from stormwater vary geographically due to differences in local land use conditions, hydrologic conditions, the type and condition of the stormwater infrastructure, and the type of receiving water. In typical undeveloped conditions, less than about ten percent of precipitation runs off the land as surface flow. In urban areas, the large amount of impervious surfaces interrupts infiltration and groundwater recharge, concentrates surface flows, and increases the frequency and quantity of runoff sent to receiving waters. As a result, more than 40% of precipitation exits urban areas rapidly through stormwater sewer systems¹. This causes hydrologic impacts such as scoured streambed channels, excessive sediment transport, loss of habitat, and increased flooding.

Many pollution sources from common land use activities contaminate urban stormwater. Streams and stormwater outfall monitoring studies have shown elevated concentrations of metals, nutrients, pesticides, and organic compounds in relation to urban development. Contaminants in building materials, in illicit discharges and spills, from vehicular traffic, and atmospheric deposition are picked up by stormwater runoff and make their way to receiving waters if left untreated. Most of these pollution sources are not under the direct control of the Permittees that own or operate municipal storm sewer systems.

The following is a list of typical and potential impacts caused by stormwater discharges:

- **Human Health:** Untreated stormwater contains bacteria, trash, excessive nutrients, toxic metals, and harmful organic compounds. Untreated stormwater is not safe for people to drink and is not recommended for swimming or contact recreation.
- **Drinking Water:** In some areas of Washington, notably Spokane County and parts of Pierce and Clark Counties, gravelly soils allow rapid infiltration of stormwater. Untreated stormwater discharging to the ground could contaminate aquifers that are used for drinking water.
- **Shellfish:** Washington State's multimillion dollar shellfish industry is increasingly threatened by closures due to stormwater contamination.
- **Pollution:** Urban stormwater is known to contain a fairly consistent suite of pollutants from common land use activities.
- **Degraded Water Bodies:** In urban and urbanizing areas across Washington State, residential, commercial, and industrial land development continues to change land cover and drastically alter stream channels. Unmanaged stormwater from urban areas has severely degraded beneficial uses of Washington's waters.
 - A recent study described the "urban stream syndrome"² where development predictably and consistently results in degraded conditions of instream water quality and biota.
 - Studies suggest that road density and traffic volumes are main stressors to benthos community health in urban streams indicating traffic associated pollutants in stormwater degraded receiving water bodies³.
 - Research in the 1990s found degraded stream benthos communities in watersheds with as little as 10% impervious surface⁴. Studies since then have found a continuum, with impacts detectable at lower levels of impervious surfaces.
 - Unmanaged stormwater has likely permanently destroyed stream habitat in some urban areas of Puget Sound. There are no known instances of recovering "poor" to "fair" or even "very poor" to "poor" condition of stream benthos.
 - Recent modeling exercises have demonstrated that current site-by-site approaches to stormwater management are insufficient to prevent continued

degradation of receiving water quality (see section on “Phase I Counties’ Watershed Modeling and Planning”).

- Elevated concentrations of pollutants in small Puget lowland streams in 2015 were significantly correlated with indicators of urbanization including impervious surfaces and watershed canopy⁵. This same study found significant differences between conditions of water quality and biota in streams inside and outside Urban Growth Areas (UGAs).
- Bacteria is the most common cause of stormwater-related water quality impairment listings. Puget Sound nearshore monitoring programs that focus on monitoring storm events or source identification tend to have higher bacteria levels than ambient programs⁶.
- Copper and lead levels are significantly higher in nearshore sediment adjacent to incorporated UGAs than unincorporated UGAs⁷. Sites identified as depositional areas contained more chemicals than the high-energy drift cells (left, right, or divergent).
- Contaminant levels in mussels along Puget Sound UGA shorelines were correlated with impervious surfaces in the small watersheds adjacent to the shoreline.^{8,9} Most mussels adjacent to UGAs had organic contaminant levels above those at the low-contamination reference site.¹⁰
- The common urban use pesticide bifenthrin was found in sediment samples from about ten percent of Puget lowland stream sites monitored in 2015.¹¹
- Numerous 303(d) listed water bodies across the State have been assigned stormwater waste load allocations.
- **Salmon Habitat:** Urban stormwater degrades salmon habitat in streams through effects on hydrologic flows and toxicity. Paved surfaces cause greater and more frequent winter stormwater flows that erode stream channels and damage spawning beds. Toxic chemicals in stormwater harm benthic insects, salmon embryos, immature fish, and adults returning to spawn. Several studies have identified concerns. A few important examples:
 - Surveys of spawning adult Coho salmon in Seattle in the early 2000s found that very high percentages of adult females (60-100 percent) were dying before they could spawn¹². Scientists soon found that stormwater pollution is likely involved¹³ and the problem is widespread throughout urban streams in Puget Sound. Untreated highway runoff is lethal, leading to 100% toxic response or death of adult salmon within 24 hours¹⁴. Active scientific investigation has made progress toward identifying the precise causes of these acute die-offs. Scientists honed in on chemicals associated with tires in the last decade.

- Ecology and Pierce County conducted *in situ* trout toxicity testing studies in four urban streams in 2008. Pierce County found no significant toxicity¹⁵. However, Ecology identified the following chemical stressors that were capable of causing adverse effects that were detected on the native trout embryos and pre-swim-up fry: copper, lead, nickel, zinc, polycyclic aromatic hydrocarbons, and the agricultural fungicide Captan¹⁶.
- In 2020, scientists at the University of Washington-Tacoma, Washington State University, and additional collaborators discovered the chemical that caused Urban Runoff Mortality Syndrome (URMS) - 6PPD-quinone, a transformation product of the tire anti-degradant 6PPD¹⁷. 6PPD-quinone has since been determined to be one of the most toxic chemicals to aquatic organisms¹⁸. Toxicity is also highly variable across organisms, even among closely related salmonids, with coho and steelhead trout being much more sensitive than Chinook and Sockeye.
- **Treaty Rights:** Due to 6PPD-quinone's harmful impacts on salmon and fish-bearing watersheds, this stormwater issue also is directly linked to Tribal Treaty Rights. The Boldt Decision (United States v. Washington, 1974) established that the Tribes are entitled to 50% of the fishing catch in their usual and accustomed fishing grounds within WA State; additionally, the decision requires that the Tribes and WA State co-manage fisheries together.¹⁹ Tribal engagement is a priority action when addressing stormwater, including 6PPD-quinone pollutants carried in stormwater.

The 2005 and 2011 evaluations of stormwater monitoring data from the National Stormwater Quality Database (NSQD)²⁰ compared the results for a range of pollutants in urban runoff from areas of different land uses gathered from Municipal Stormwater Permit holders across the nation. Much of the data may be used to characterize stormwater produced from specific land uses, such as industrial, commercial, low density residential, high density residential, and undeveloped open space.

In the 2007 Permit, Phase I cities and counties and the ports of Tacoma and Seattle were required to conduct stormwater discharge characterization monitoring to improve our understanding of the amounts of a wider range of pollutants found in stormwater from various land uses. These stormwater characterization data provide robust and regionally relevant stormwater data in Washington State and were compared to the NSDQ historical data sets. The Washington data generated by the Phase I permittees continues to be used by natural resource and stormwater managers as a basis for decision making, monitoring comparison, models, treatment technology development and future studies. These findings are presented in section below on "Phase I Permittees' Stormwater Discharge Characterization Monitoring."

5.2. Previous and Ongoing Regional Efforts

Ecology and Permittees are investing in efforts to inform and improve our collective understanding of stormwater impacts and Permittees' implementation of the stormwater management programs and practices required in the Permits. The goals are to better understand the sources and pathways of pollutants, to measure our progress over time, and to continue to identify and target effective management approaches. This is an on-going effort. Several regional efforts have significantly contributed to an understanding of stormwater impacts and management practices on the beneficial uses of Washington waters.

5.2.1. Phase I Counties' Watershed Modeling and Planning

The 2013 Permit required detailed modeling and planning by the four Phase I counties in western Washington. The purpose of the Permit requirement was to determine what stormwater management and other actions are necessary to meet water quality standards in developing areas. The counties invested considerable staff time and resources into this effort and learned some lessons that can be broadly applied.^{21,22,23,24}

Each of the counties selected a medium sized (10-50 square miles) watershed located in an Urban Growth Area (UGA) designated pursuant to the State's Growth Management Act (GMA) and therefore known to be under pressure for development in the near future. The watersheds have unique characteristics, but all are already partially urbanized.

The counties created models to test a suite of supplemental strategies in various scenarios to see if water quality standards were, or could be, met. The modeling showed that current and future conditions in these watersheds are impacted in various ways, and that actions beyond site-by-site stormwater management will be needed to prevent degradation of the receiving waters and meet water quality standards. The models in all of the watersheds projected that riparian restoration and large amounts of additional stormwater detention are needed to improve conditions.

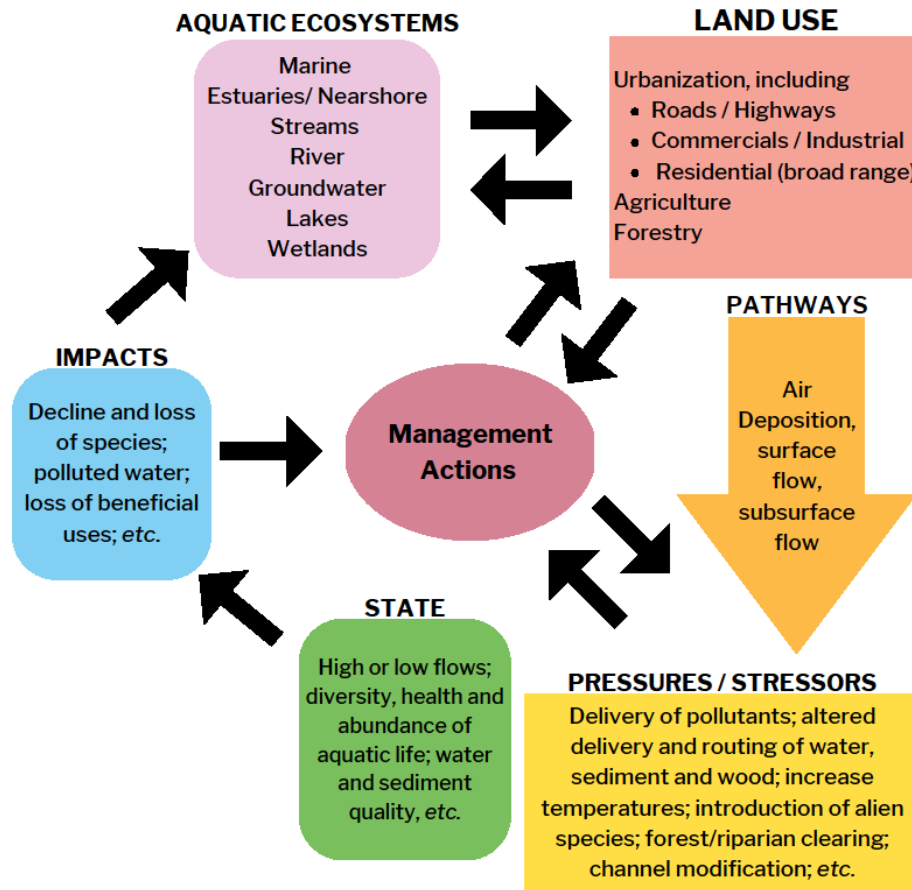
The anticipated costs to recover from these impairments is hundreds of thousands of dollars per acre of watershed. The costs per acre for these basins are somewhat lower for less developed basins, but they are still well beyond what might be affordable with current funding programs and approaches.

An important strategy that one of the four counties highlighted in their scenarios was changing the land use designation or zoning established as part of the growth management process. King County demonstrated that such changes will help protect water quality. Ecology encourages stormwater managers to seriously consider pursuing this type of strategy in future planning to accommodate projected population increases and is included as a key component of Stormwater Management Action Plans. This work has informed the evolution of the Permits to incorporate management beyond site-by-site approaches. The Permit continues to refine the work started under the 2013 permit for Phase I Permittees.

5.2.2. *Puget Sound Ecosystem Monitoring Program Stormwater Work Group (SWG)*

Stormwater Work Group members are representatives of local, state, and federal governments, environmental and business organizations, public ports, Tribes, and agriculture. The group formed in 2008 to develop a strategic approach to monitoring and assessment, and to reduce stormwater pollution in Puget Sound. (SAM) program implementation, the unique regional stormwater monitoring program implemented through the municipal stormwater permits and funded by permittees.

The SWG developed recommendations for a comprehensive stormwater monitoring strategy focused on Puget Sound.²⁵ To develop the strategy, the SWG convened many of the region's stormwater experts to review previous work and evaluate the direct and indirect effects of stormwater on the Puget Sound ecosystem. The SWG also evaluated the various pathways by which those effects are transmitted and developed the monitoring approach ultimately included in the 2013 Phase I and Western Washington Phase II Permits and still used in Permits. The SWG also evaluated the various pathways by which those effects are transmitted and developed the monitoring approach ultimately included in the 2013 Phase I and Western Washington Phase II Permits and still used in Permits. In the process of reaching consensus from a broad range of expertise and technical backgrounds, the work group members formulated a conceptual model of the factors driving the stormwater-related impairment of water quality and habitat in the region. Figure 1 shows the types of stressors that should be considered, the pathways by which those stressors are transmitted, and how the outcomes of our management efforts should be assessed, using a Driver-Pressure-State Impact-Response (DPSIR) conceptual model approach.²⁶



The conceptual model identifies land use as the driver for impacts to aquatic ecosystems. Ecology is applying the DPSIR approach illustrated in this conceptual model to organize stormwater-related ecosystem recovery efforts and use monitoring information for adaptive management.

The SWG continues to discuss recent scientific findings, recommend priorities, and review budget decisions for the regional stormwater monitoring program Stormwater Action Monitoring, known as the SAM Collective.

The SWG formed a new subgroup, the “6PPD Subgroup,” to share regional interest, information, and concerns about the emergent chemicals of concerns, 6PPD and 6PPD-quinone. This subgroup formed in February 2021 three months after the landmark publication by UW-Tacoma and WSU in December 2020 identifying 6PPD-quinone as the primary agent causing the death of pre-spawn coho salmon. This subgroup meets on a quarterly basis and regularly hosts over 100 attendees. Speakers and participants share information about stormwater research and collaborate to address challenges in understanding 6PPD contamination. To guide new research, the subgroup provided recommendations to the SWG for 6PPD-related priority study topic areas through the Round 4 SAM study solicitation process. The SWG subgroup continues to focus on

stormwater management, BMPs, and research on addressing tire wear particles, 6PPD, and 6PPD-quinone.

5.2.3. Stormwater Action Monitoring (SAM) Collective

The SAM Collective is the regional stormwater monitoring program which is primarily funded by Phase I and Phase II permittees in western Washington through Special Condition S8. Monitoring and Assessment requirements. SAM was launched in 2014 and is implementing the SWG's strategy and recommendations to produce stormwater focused studies with actionable findings in three focus areas:

1. The effectiveness studies investigate whether various stormwater management approaches work or fail, why or why not, and under what conditions;
2. The source identification projects identify the most common problems and propose regional actions; and
3. The status and trends monitoring projects evaluate conditions in the freshwater and marine waterbodies MS4s discharge to.

Between 2014 and 2023, SAM initiated a total of 22 effectiveness, five source identification, and eight status and trends monitoring projects. In summer 2023, SAM is soliciting requests for new studies that will begin in 2024.

5.2.4. How has SAM study findings resulted in changes to the Phase I and Phase II Western Washington Permits and other Ecology programs?

SAM's goal is to capture a regional understanding of how stormwater management actions can lead to water quality protection and restoration. Stormwater managers, field practitioners, and Ecology use SAM findings to improve management practices and to set project and funding priorities. The following is a partial list of recommendations adopted by Ecology from the effectiveness studies and source identification projects completed during the 2019-2024 MS4 permit cycle (BMP references below are to BMPs in the SWMMWW, some of which also correspond to BMPs in the SWMMEW):

- **Paired watershed retrofit & restoration study (interim findings)²⁷** - The City of Redmond is the lead agency on this multi-year complete watershed-scale stormwater retrofit effectiveness study. Early findings suggest that to detect changes in receiving water peak flows in any given watershed, a meaningful threshold of flow control implementation is needed. As part of this study, a short-term project to evaluate effectiveness of the individual BMPs used in the project found street sweeping improved the water quality of the small streams. Ecology also continues to fund infrastructure improvements and maintenance activities, like street sweeping.

- **Regional stormwater facility retrofits²⁸** - King County evaluated how effectively a large improvement project treats stormwater at a regional water detention facility in Federal Way. The overall goal was to evaluate two new bioretention facilities, an expanded wetland complex, and the regional facility as a whole, for their ability to improve water quality and to reduce peak flows of stormwater runoff. Both bioretention facilities, the expanded wetland complex, and the system as a whole, reliably attenuated stormwater flows by reducing and delaying the timing of peak flows. The bioretention facilities and the wetland complex had mixed water quality treatment results; they were able to treat some targeted pollutants but not others. Ecology updated technical guidance to recommend against additional soil media depths in bioretention due to the export of nutrients (BMP T7.30).
- **Stormwater treatment facilities along highway corridor²⁹** - Highway corridors have limited land area and opportunities for retrofits to improve stormwater treatment. A study led by King County provided insight into how to maximize the benefits of retrofit projects in these space-constrained areas. The study evaluated the BMPs for their effectiveness to reduce many pollutants common in stormwater. The findings underscore that downstream water quality improvements, especially mid to large water bodies, cannot be measured by improvements from a single retrofit project. Ecology continues to encourage strategic retrofitting of road corridors. As a result of this study, Ecology is also emphasizing in technical guidance that curb cut inlets be large enough to not easily clog with road debris (BMP T7.30).
- **PCB reduction in default bioretention soil mix³⁰** – King County evaluated the capture and treatment of polychlorinated biphenyls (PCBs) in bioretention soil mesocosms built with the most used bioretention BMP soil mixture – the 60% sand and 40% compost mix. The mix was highly effective at removing PCBs when stormwater concentrations were relatively low. This study provided much needed information about the successful treatment and reduction of low-level PCBs carried by in stormwater. Finding no buildup of PCBs in the soil matrix is promising. Ecology continues to support installation of bioretention facilities using the default 60:40 mix to treat stormwater runoff from all land uses. While there are no stormwater treatment thresholds in the stormwater manuals, Ecology updated organic compound management recommendations for bioretention soil media in Ecology’s stormwater management manuals to reflect this early research on PCB treatment findings (See BMP T7.30).

- **Alternative blends for bioretention soil mix³¹** - King County led a bench-scale study to test soil media for bioretention facilities that have surface connection to receiving waters sensitive to phosphorus. The recommended blends provide alternatives to the default 60:40 mix that meets treatment goals for suspended solids, copper, zinc, and phosphorus, and prevents toxicity to aquatic organisms. Ecology published the High Performance Bioretention Soil Mix (HPBSM) specifications for the recommended alternative blend from the SAM study ([Ecology Publication #21-10-023⁶](#)) and now allows the use of this media for all bioretention facilities. The study findings and the new specification guidance are also incorporated in guidance on bioretention facility BMPs in Ecology's stormwater management manuals (See BMP T7.30).
- **Bioretention amendment with fungi³²** - U.S. Fish & Wildlife partnered with Washington State University-Puyallup to evaluate the ability of the default 60:40 bioretention soil mix to reduce nutrient, bacteria, and metal pollutants when amended with fungal spores and plants. Fungi provided multiple water quality benefits, including reduced phosphorus leaching from the soil mix and improved removal of some metals, especially during the initial peak leaching stage of newly constructed bioretention. This study increased Ecology's understanding of the biological elements of bioretention. Ecology updated phosphorus management recommendations for bioretention soil media in Ecology's stormwater management manuals to reflect this new research on the effectiveness of fungal-inoculated mulch at reducing ortho-phosphate export (See BMP T7.30).
- **Bioretention amendment with mulch³³** - Washington State University–Puyallup tested three mulch types – arborist wood chips, medium bark, and nugget bark – for their ability to reduce weeds, retain moisture in bioretention soils, and capture pollutants. All three mulches suppressed weed growth and preserved soil moisture. The bioretention cells topped with nugget mulch had significantly lower outflow volumes than the other mulches. While all bioretention cells exported nitrogen and phosphorus, the nitrogen concentrations in bioretention effluent were significantly lower in mulched cells compared to the no-mulch controls. Ecology updated the guidance for bioretention facility BMPs in the stormwater management manuals to recommend covering bioretention soil mix with mulch (See BMP T7.30).
- **Hydrologic Performance of Bioretention³⁴** - A two-phased study assessed hydrologic performance of bioretention BMPs built according to different design models. The City of Bellingham led the first phase of the study to evaluate bioretention designed prior to the 2012 Western Washington Hydrologic Model (WWHM) and the City of Olympia led the second phase evaluating those designed to the current standard required in Ecology's stormwater management manual using WWHM. These studies provided proof of performance from 20 existing facilities and guidance for future installations. The findings show that bioretention facilities work as intended for stormwater runoff hydrologic control.

⁶ <https://apps.ecology.wa.gov/publications/SummaryPages/2110023.html>

- **Raingarden and bioretention protocol³⁵** - The City of Puyallup partnered with Washington State University, Washington Stormwater Center, and Stewardship Partners to create an easy-to-use field protocol to assess the functionality and maintenance needs of rain gardens and bioretention facilities. The intention is for permittees to use the field protocol outcomes to inform, refine, and improve their rain garden and bioretention efforts. The assessment can also help permittees determine their staffing needs and prioritize maintenance activities. Ecology updated guidance on selecting plants for bioretention facility BMPs in the stormwater management manuals to include a reference to this SAM study (BMP T7.30). Ecology's permit managers encourage permittees to use the assessment protocol to help them prioritize maintenance needs.
- **Oyster shell retrofits in catch basins³⁶** - King County completed a pilot study evaluating the effectiveness of stormwater treatment by oyster shell. Previous studies showed successful reduction of metals using oyster shell media in retrofits at the parking lot or individual building site scale. This study aimed to evaluate treatment at higher flows in catch basins with larger drainage areas. The data showed no treatment effect likely due to limited contact time from the high flows at the testing locations. Additional studies are needed to understand the extent that oyster shell treatment can be scaled up.
- **Catch basin cleaning³⁷** - King County led an effort to collect, assemble and analyze local government catch basin cleaning data. The primary goal was to identify factors that could be used to predict municipal stormwater catch basin maintenance needs by evaluating existing inspection and maintenance records. Data quality issues along with an overall lack of existing drainage basin delineations precluded the intended correlation analysis. Instead, the study evaluated records with the highest certainty and focused on making recommendations in three areas: improving records quality, increasing program cost efficiency, and designing a tool for predicting inspection needs. Ecology's permit managers will work with permittees to answer questions about alternative catch basin inspection and maintenance schedules. Ecology does not approve individual programs, so Ecology's focus will be on helping permittees ensure that they have adequate data to support their proposed schedules.
- **Designing and Evaluating Behavior Change Marketing Campaigns³⁸** – Washington State University and subconsultants used surveys and literature to evaluate which types of stormwater problems are best addressed by behavior-change efforts. Permittees now have an online decision-support tool, templates, guidance, and training available to guide their work on prioritizing stormwater-education efforts and evaluating effectiveness of their programs. Ecology added the tools developed in this project to [our public education and outreach guidance for local programs⁷](#).

⁷ <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Municipal-stormwater-permit-guidance>

- **Update to the Illicit Connection and Illicit Discharge (IC-ID) Field Screening and Source Tracing Guidance Manual³⁹** - King County and subconsultants led this 2020 update to the Illicit Connection and Illicit Discharge (IC-ID) Field Screening and Source Tracing Guidance Manual (IC-ID Manual), which was originally published in 2013. Recognizing the need for and benefit of coordinated IC-ID practices and training materials, Ecology continues to support regional efforts to develop consistent methods for pollution screening, identification, and tracing. Ecology shared the updated IC-ID Manual with the Pollution Prevention Assistance program (formerly the Local Source Control program) and added the new manual to our webpage of Illicit Discharge and Detection guidance.
- **Regional Spill Hotline Feasibility Study⁴⁰** - Spills to the stormwater system can be reported to local and state governments in a variety of ways. King County investigated alternatives and led a feasibility analysis on whether a regional or statewide 'hotline' could be used to gather all the spill information in one place. Surveys and interviews of stormwater permittees indicated a reluctance to support a modern regional hotline; many believe the role is filled by Ecology's Environmental Report Tracking System (ERTS). Ecology redesigned ERTS in 2019 to make it easier for Ecology to track and update reports. The redesign also added connectivity between Ecology's other databases. As the new system matures, we expect to see improvements in reporting timeframes for jurisdictions.

5.2.5. Puget Sound Streams and Nearshore Status and Trends Monitoring

SAM conducts long-term regional status and trends monitoring studies to learn how collective stormwater management actions are improving streams and marine waters in western Washington. The Puget Sound small streams and nearshore studies monitor randomly selected sites in small urban streams and nearshore along urban growth area shorelines – areas presumed to be most affected by stormwater runoff.

The Puget Sound small streams study is led by the U.S. Geological Survey and includes the collection of samples for water and sediment quality, biological indicators including the benthic index of biotic integrity (BIBI), and an assessment of instream and riparian habitat condition. Sites are chosen using a probabilistic random sample design so the condition of all Puget Sound lowland streams can be inferred from the data collected at individual sites. The small streams study began in 2015 under a different study design and was modified in 2020 to improve monitoring efficiency and statistical power.

As of summer 2023, we have completed one year of monitoring. In this first year of monitoring, sampling found that sediment metals and total polycyclic aromatic hydrocarbons (PAHs) were well below state sediment cleanup standards and, in general, showed higher values in more urbanized sites. Water quality showed a similar pattern with nutrients, metals, and bacteria—concentrations were higher at the more urbanized sites. Most sites (23 of 33) were considered in poor biological condition according to their BIBI scores.

All sites sampled in 2020 were sampled in 2015 allowing for a comparison of data between the two time periods. Overall, differences between water and sediment quality are minimal between the two time periods. BIBI scores are also similar across both time periods, except for the most urbanized watersheds, where scores declined. The first detailed analysis of status and trends in small streams will be completed in 2025-2027, after the first 5 years of sampling are completed.

SAM's mussel monitoring study led by Washington Department of Fish and Wildlife assesses bioaccumulation of pollutants from urban marine shoreline in Puget Sound. The mussel monitoring study also follows a probabilistic survey design. Washington Department of Fish and Wildlife has conducted three wintertime surveys (2016, 2018, and 2020).

In 2020, concentrations of copper and mercury in mussels located along urban marine shoreline were less than or equal to sites with little urbanization. In addition, concentrations of three of the four most frequently detected organic contaminants (PAHs, PBDEs, and DDTs) were lower in the most recent survey (2020) than in past surveys (2016, 2018). The decline in PAHs primarily occurred in areas of medium level of land development (20-40% impervious surface), while PBDE declined within all areas of land development except low development (10-20%). PCBs levels did not change significantly over time or within a development category. More data is needed to characterize the temporal pattern of metals in mussels; however, a few trends began to emerge. Cadmium and zinc concentrations were higher in the most recent surveys (2018, 2020) compared to 2016 survey. Copper and mercury concentrations were lower in the survey 2020 compared to 2016 and 2018. There were no meaningful changes in mean concentrations of lead and arsenic across the survey years⁴¹.

5.2.6. Lower Columbia Urban Streams Status and Trends Monitoring

SAM conducts a long-term regional status and trends monitoring study to learn how collective stormwater management actions are improving streams in the Lower Columbia River basin. Clark County leads SAM's Lower Columbia Urban Streams (LCUS) monitoring in urban and urbanizing areas in the municipal stormwater permitted area in Clark and Cowlitz counties.

Monitoring began in late 2020 at sites with medium to high levels of land development (33 to 97% impervious surface). The first results identified several stressors that effect overall stream health. Most stream flow measurements met criteria for supporting salmonoid use, however no site met the temperature criteria. BIBI scores generally declined in watersheds with increasing impervious surface and traffic values greater than 10,000 daily trip miles per square mile. BIBI scores in nearly all streams showed severe drought stress.

Like SAM's monitoring in Puget Sound, metal concentrations in stream sediments were below the cleanup standards. All streams had excessive fine-grained sediment as measured by embeddedness or the amount of fine sediment in gravel beds⁴².

The LCUS study design includes trend sites that will be monitored yearly and status sites that will be sampled at five-year intervals. Over time, this study data will be used to categorize LCUS streams in good, fair, or poor condition. Trend analyses and risk assessments will be conducted every five years to identify the key stressors causing poor stream conditions in the region.

5.2.7. Evaluation of Eastern Washington Receiving Water Data

In preparation for the 2019 Permits and in recognition of the differing hydrogeologic settings in eastern Washington, Ecology asked the U.S. Geological Survey to evaluate existing information about stormwater impacts to receiving waters in eastern Washington⁴³. The review concluded that the receiving water monitoring approaches in Puget Sound and the Lower Columbia are not suitable for application in eastern Washington and recommended instead focusing on effectiveness studies. The Permits continue to rely on that assessment.

5.2.8. Eastern Washington Stormwater Management Effectiveness Studies

Since the 2013 Permit, stormwater managers in eastern Washington have engaged in a process to identify and prioritize effectiveness study questions and topics.

The current Permit encourages collaboration between Permittees to meet this Permit section. There are ten designated Urban Areas in eastern Washington: Wenatchee, Ellensburg, Yakima, Sunnyside, Tri-Cities, Moses Lake, Walla Walla, Clarkston, Pullman, and Spokane. Any number of Urban Areas may work together on a single new study (e.g., all of the cities and counties in Yakima, Sunnyside, and Tri-Cities Urban Areas – or all EWA Permittees – can propose a single study as a regional group).

Since the 2013 Permit, 10 studies have been conducted, and 3 are underway (or about to be). The following is a list of EWA effectiveness studies and lead entity (the following descriptions are summaries from the final reports for each study):

1. Elementary School Stormwater Education Effectiveness Study: Drain Rangers Program (Kennewick)

Drain Rangers is a stormwater curriculum that was adapted to eastern Washington and implemented in several elementary schools. The study results indicate that the Drain Rangers program has a very positive effect on educating students about stormwater effects and solutions. This included a 22% increase in expressed actions to address stormwater issues, a 67% increase in scoring for stormwater knowledge and solutions, and a 17% increase in expressed attitude that personal actions can make a positive difference to keep waterways clean and healthy. Based on those scores, this report enthusiastically recommends the continuation and further implementation of the Drain Rangers program to

educate elementary school students in the stormwater world. The study includes recommendations for future implementation of the program as well.

2. Street Sweeping and Catch Basin Cleaning Comparison (Ellensburg)

The goals for this study were to:

- investigate whether the frequency of street sweeping significantly influenced sediment accumulation in catch basins (and transport from catch basins) during the dry season in a semiarid location,
- recommend a combination of street sweeping and catch basin cleaning procedures for achieving permit requirements for catch basin cleaning, and
- use the study results to justify a condition in the next permit for O&M procedures that allows street sweeping practices to offset the frequency of catch basin cleanings.

While there was generally a decreasing trend in the sediment accumulation rates in catch basins and catch basin socks (washout) as the frequency of street sweeping increased, the differences between the test side and control side were statistically insignificant.

Recommendations for future studies include a longer study over multiple years and with considerably more data to mitigate the influence of extreme variability on the results and increase the likelihood of demonstrating a significant difference.

3. Mobile Contractor Illicit Discharge Education & Outreach Effectiveness Study (Wenatchee)

The goal of this study was to assess the effectiveness of the Dump Smart education and outreach program in eastern Washington specifically for carpet cleaners. Carpet cleaning businesses in jurisdictions were surveyed as well as business in areas that did not participate in the Dump Smart Program. While challenging to gain responses to surveys from mobile businesses to conduct a statistical analysis, results showed respondents carried spill kits, and disposal methods included wastewater treatment connections, but also near or at storm drains. Edits and improvements to the education and outreach program were identified based on the results of the study.

4. Sand Filter Sidewalk Vault BMP (Spokane County)

The purpose of this study was to evaluate the stormwater treatment performance of a new sand filter BMP, the sand filter sidewalk vault that could be used in more site constrained locations. The new BMP was evaluated through the Technology Assessment Protocol – Ecology (TAPE) treatment performance goals, and results showed performance goals were not achieved. Recommendations for future testing included design and specification improvements for treatment and operation and maintenance.

5. BMP Inspection and Maintenance Responsibilities for Privately Owned Facilities (Yakima County)

The goal of the study was to identify and evaluate commonly used inspection, maintenance, and enforcement strategies of privately owned stormwater BMPs. The strategies identified focused on who inspects and/or maintains privately owned BMPs: the permittee, BMP owner, a 3rd party, or different combinations of these groups. These strategies were evaluated based on survey and interview responses from 26 Permittees in Washington, Oregon, Idaho, and Montana. Variable results based on local priorities led to the recommendation for the development of a guidance manual that includes a variety of methods to develop and/or improve a jurisdiction's inspection, maintenance, and enforcement programs for BMPs on private property. Jurisdictions statewide could use the manual and select the methods that best fit their strategy and priorities.

6. Bioretention Soil Media Thickness Study (Spokane County)

The goal of this study was to justify development of a modified bioretention BMP that uses the existing 60:40 bioretention mix to a minimum depth of 12-inches (rather than the current required 18-inch depth) for providing treatment of TSS and dissolved metals. Recommendations for future actions focused on additional research needed to make the proposed change to thickness based on the findings from this study. Specifically, analysis of influent concentrations in EWA, research of the effects of cold climate conditions on bioretention treatment and infiltration performance, development of BSM to reduce leaching and support non-vegetated cells, revaluation of qualifying storm event guidelines.

7. Sharp Avenue Permeable Pavement Pollutant Removal Efficacy (Spokane)

The goal of this study is to measure the effectiveness of permeable pavement in the real-world environment. This study is ongoing, and results will be reported in 2024.

8. Garland Avenue Biochar Amended Storm Gardens Pollutant Removal Efficacy (Spokane)

The goal of this study is to measure the percent reduction of monitored pollutant concentrations between the influent and effluent of the bioinfiltration swales amended with biochar into the engineered soil mix. This study is ongoing, and results will be reported in 2024.

9. Private Residential BMP Owner Awareness (Wenatchee)

This study evaluated the effectiveness of a recorded O&M agreement as the primary mechanism to inform property owners of the existence of the BMP and maintenance responsibilities related to the private stormwater BMP. The study compared BMP awareness between homeowner groups that have recorded O&M agreements (test) versus homeowner groups that do not have a recorded O&M agreement (control). The study found that the majority of residents (59%) were unfamiliar with the O&M agreement associated with their BMP and less than half (44%) of the residents within the Test area

(with an O&M) were unfamiliar with the O&M agreement for their neighborhood. Additional education and outreach measures for BMP O&M were identified and recommended based on the results of this study.

10. Business Education and Outreach (Fast-Food Restaurant) (Ellensburg)

The goal of the study was to evaluate the effectiveness of an education and outreach (E&O) program developed to increase fast-food restaurant management and staff awareness about the impacts of fats, oils, and grease (F.O.G.) and wash water on water bodies and to promote behavior change, specifically, properly disposing of F.O.G. and wash water can reduce that impact. Restaurants were surveyed and observational data collected, results did not measure a statistically significant change in awareness or adoption of F.O.G. and wash water practices. However, small improvements in awareness were observed related the proximity of waste containers to storm drain (how F.O.G. can reach the storm drain) as well as adoption of some practices, such as closing of the lids on used cooking oil containers. The results drove recommendations to the education and outreach program for future implementation, including more technical assistance and improvements to handout materials.

11. Car Wash Wastewater Management Education and Outreach Effectiveness Study (Yakima)

The goal of the study was to evaluate the effectiveness of an education and outreach (E&O) program developed to raise residents' awareness about the impacts of car wash wastewater on water bodies and to promote behavior change, specifically, using car washing best management practices (BMPs) can reduce that impact. The study looked at three neighborhoods and used survey and observational methods. Based on the results of the study, recommendations have been developed to direct on-going E&O efforts in future years. The recommendations focused on increasing the reach of the E&O program to the general public, increasing the reach of the E&O program to Spanish-speaking communities, improving the E&O program messaging and materials, and improving general survey response rate if surveys are used to collect data in future years.

12. Non-Vegetated Biofiltration Swale Study (West Richland)

The goal of this study was to evaluate the treatment performance to determine if a non-vegetated filtration swale can meet the same Basic Treatment Performance Goal (80% reduction of total suspended solids [TSS]) as biofiltration swales. The non-vegetated filtration swale BMP is the same as a biofiltration swale except the filtration swale is lined with rock instead of grass. The study goal was accomplished through controlled tests conducted at a test site in West Richland. Based on the results of the study, the swale appears to meet treatment performance for the first 2 years before maintenance is needed. Maintenance actions needed to restore the treatment performance of the swale were not determined. Additional field testing to understand effective maintenance activities to restore the swale to treatment performance every two to three years and the frequency at which more minor actions items such as removal of sediment and debris from inlets and weed control is recommended.

13. Seasonal Variability of Soil Media (Spokane)

The goal of this effectiveness study is to compare trends observed in the treatment and infiltration performance during summer and winter in a semi-arid climate. The trends will be observed for two non-vegetated bioretention cells containing the 60:40 BSM and High Performance Bioretention Soil Media (HPBSM). This study is just getting started at this time.

5.2.9. Toxic Loading Studies for Puget Sound

In 2010, Ecology and others⁴⁴ estimated toxic chemical loadings from surface runoff in the Puget Sound Basin. This was Phase 3 of a series of studies that began in 2006 and included a multi-partner steering committee of federal, state, and local government agencies, consultants, and reviewers.

As part of Phase 3 of its toxics loading study, Ecology collected water quality samples of surface runoff during eight storm or baseflow events from 16 distinct sub-basins, each representative of one of four land covers (Commercial/Industrial, Residential, Agricultural, and undeveloped Forest/Field/Other). Analyses of the samples employed much lower detection limits than typically used to produce pollutant concentration and loading data. No other study in Washington has quantified pollutant loads for so many constituents at this scale. Although this data represents surface runoff in the sampled sub-basins and is not directly representative of regulated stormwater discharges, some of the findings are generally in agreement with those from the 2005 analysis of the National Stormwater Quality Database. The pollutant loading estimates were based on data collected from small streams, where pollutant concentrations had likely been reduced by attenuation, degradation, deposition, and/or dilution. Therefore, the loading estimates might have been greater if they had been based on outfalls from stormwater conveyance systems.

The study found the following:

- Surface water runoff, particularly from commercial and industrial areas, did not meet water quality standards or human health criteria for the following parameters: dissolved copper, lead, and zinc; total mercury; total polychlorinated biphenyls (PCBs); several carcinogenic polycyclic aromatic hydrocarbons (PAHs); and DDT-related compounds.
- Organic pollutants and metals were generally detected more frequently and at greater concentrations in surface runoff from commercial and industrial areas than from other land uses. Runoff from residential and agricultural land had higher frequency of detection for most parameters than runoff from undeveloped/forested land, but generally less than runoff from commercial land. Greater detection frequencies occurred during storm events than during baseflow across all land cover types.
- During storm events, surface runoff from areas of forested and commercial land covers were chemically distinct from each other and from the other land cover types. Forested lands produced runoff with smaller concentrations of nitrate+nitrite nitrogen, total phosphorus, and total arsenic, copper, mercury, and suspended solids. Commercial land areas produced runoff with relatively greater concentrations of total lead, zinc, PBDEs, and PCBs.
- At the local scale, pollutant loading rates via small streams were substantially greater during storm events compared to baseflow. The rain-induced surface runoff during storm events caused higher streamflow rates. These higher flow rates coupled with increased pollutant concentrations to produce substantially greater loading rates for storm events than for baseflow. This result suggested that the greatest opportunity for transport of toxic chemicals occurs during storm events.

5.2.10. Phase I Permittees' Stormwater Discharge Characterization Monitoring

In 2015, Ecology⁴⁵ summarized monitoring results from Phase I Municipal Stormwater Permittees, including Clark, King, Pierce, and Snohomish Counties, the Cities of Seattle and Tacoma, and the Ports of Seattle and Tacoma, and collected chemical monitoring data representing municipal stormwater discharge quality during 2007 Phase I Permit. Tacoma and Clark County continued this monitoring in the 2013 Permit.

The 2007 Permit required each city and county Permittee to conduct stormwater characterization monitoring at three (or, for each of the two Ports, one) municipal stormwater basins representing four land uses (industrial, commercial, low density residential, and high density residential). This monitoring represents flow-weighted composite samples from 11 storm events each water year, annual sediment sampling, and one-time toxicity testing of seasonal first-flush discharges.

No other stormwater monitoring effort in Washington – or in the nation – has generated comparable water quality data on municipal stormwater discharges for such a large parameter suite from these four typical land uses.

Generally, stormwater discharge concentrations were consistently lower than data in the National Stormwater Quality Dataset,⁴⁶ much lower than the National Urban Runoff Program data,⁴⁷ but higher than the levels reported in the Toxics Loading Study for Puget Sound. These results were not surprising, the two national datasets likely contain data from denser cities and the toxics loading study sampled receiving waters, not stormwater discharges, during storm events. By in large, Ecology concluded that “typical” stormwater chemistry for a given land use remains an elusive definition. This compilation study also found the following:

- Approximately 600 storm events were sampled by the eight Phase I Permittees and Co-permittees. Hydrologically, the data set compared well to the precipitation record for the Puget Sound region and the samples covered 80-90% of the storm hydrograph in most cases.
- Efforts to assess toxicity of stormwater on trout embryos per Permit requirements were met with considerable logistical and bioassay complexity. Most bioassays had no adverse effects, and those with toxicity effects, samples from larger commercial areas, indicated the likely toxicants were zinc and copper.
- Fecal coliforms were a fairly ubiquitous contaminant but were found at significantly lower concentrations from low density residential land uses. Seasonally, fecal counts were significantly higher in the dry season compared to the wet season.
- For nutrients, there does not appear to be any significant difference between land uses. Dissolved nutrients were higher from residential areas, but lower than the concentrations in the Toxics Loading Study, which suggests that piped stormwater systems in Phase I areas aren’t a major source for dissolved nutrient loads to Puget Sound.
- Commercial and industrial areas discharged stormwater with the highest concentrations of metals, hydrocarbons, phthalates, total nutrients, and a few pesticides.
- Metals concentrations monitored during the dry season (May through September) were statistically higher than concentrations monitored during the wet season.
- Comparisons to water quality criteria were made for context in this report. Copper, zinc, and lead most frequently exceeded (did not meet) the water quality criteria for protection of aquatic life.
- PAHs, phthalates, PCBs, and the few detected pesticides did not exhibit a significant seasonal difference, suggesting these parameters were being discharged from a consistent source throughout the year. Bis(2-ethylhexyl) phthalate was frequently found in stormwater and stormwater sediment.
- Volatile organic chemistry parameters and multiple pesticides were infrequently detected or not detected at all in samples such as benzene, toluene, ethylbenzene, xylene, Malathion, prometon, chlorpyrifos, Diazinon, Triclopyr, mecoprop, and many phenolics.

- NWTPH-Dx compounds were persistent stormwater contaminants. Commercial and industrial areas discharged much higher concentrations and loads than did residential areas. When the motor oil fraction was considered separately, the highest load was from residential areas. However, NWTPH-Gx was poorly detected and, if present, was likely volatilized before monitoring.
- Stormwater sediment samples (collected from catch basins or outfall locations) were infrequently collected but some of the parameters showed a similar contaminant level pattern to the stormwater samples across land uses. Concentrations for several phthalates, PAHs, phenols, copper and lead were often detected but generally lower than sediment cleanup objectives, except bis(2-ethylhexyl) phthalate which was often above. More data is needed to better characterize in-line stormwater solids both spatially and temporally.

5.2.11. 6PPD Best Management Practices (BMP) Effectiveness Research

In 2021, the WA State Legislature passed a proviso that directed the Department of Ecology to identify transportation infrastructure and roads of concern for 6PPD and 6PPD-quinone pollution and best management practices (BMPs) to protect aquatic life from 6PPD-quinone. Ecology was also required to submit a report to the legislature on findings: [6PPD in Road Runoff: Assessment and Mitigation Strategies](#)⁸.

In 2022 and 2023, the legislature granted to Ecology's Water Quality Program additional funds to research stormwater BMP effectiveness at capturing and treating tire wear particles, 6PPD, and 6PPD-quinone. To date, this funding has supported the following research:

- **Summary of the current knowledge and understanding of 6PPD and 6PPD-quinone (Osborn & Evergreen StormH2O Consulting):** These groups helped support the SWG 6PPD Subgroup, are currently conducting a literature review to understand how particle sizes affect 6PPD-quinone filtration, and wrote the report "Stormwater Treatment of Tire Contaminants Best Management Practices Effectiveness" which is linked in the Stormwater Management Manuals. This report evaluated currently published BMPs for presumed effectiveness at capturing and treating tire wear particles, 6PPD, and 6PPD-quinone. Key findings from this report included:
 - **Source Control BMPs:** Street sweeping and cleaning roadside ditches, catch basins, and storm drains were source control BMPs that were ranked as having a high potential of preventing 6PPD and 6PPD-quinone from entering waterways. Moderately effective source control BMPs included education and outreach practices.

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https://app.leg.wa.gov/ReportsToTheLegislature/Home/GetPDF?fileName=ECY%206PPD%20in%20Road%20Runoff%20Report_32dc8c92-b98a-4023-97f2-d6d2ec19b390.pdf

- **Flow Control BMPs:** Bioretention BMPs and infiltration basins were flow control BMPs that ranked high in potential effectiveness by slowing and reducing runoff through the onsite management of water. Moderately effective flow control BMPs included detention ponds and permeable pavement. Flow control BMPs are often designed with runoff treatment BMPs to be even more effective.
- **Runoff Treatment BMPs:** Runoff treatment BMPs reduce the concentrations of targeted pollutants through means of physical filtration and chemical sorption. Bioretention soil mixes were the only BMP in the literature reported to reduce 6PPD-quinone exposure and mortality in fish. Other runoff treatment BMPs, like sorbent medias and media filters, are ranked as likely to have high effectiveness, and sand filters are moderately effective.
- **Monitoring study to evaluate the capture and treatment of 6PPD-quinone by newly approved bioretention medias (King County):** This study is running column tests with stormwater samples and high performance bioretention soil mixes (HPBSM). Four HPBSM mixes are being utilized in this study including Type 1, an 18-inch HPBSM primary layer consisting of 70% sand, 20% coir (coconut fiber), and 10% biochar; Type 2, consisting of the Type 1 HPBSM primary layer plus a 12-inch polishing layer comprised of 90% sand, 7.5% activated alumina, and 2.5% iron aggregate; Type 3, consisting of the Type 2 HPBSM plus a 2-inch compost layer; and Type 4, a standard HPBSM mix that meets Ecology's bioretention compost specifications and includes 60% sand and 40% stormwater compost.
- **Monitoring study to evaluate the partitioning of tire wear contaminants to soils and stormwater sorbent media (UW-Tacoma):** This group is comparing contaminant capture of different engineered medias, commercial sorbent components, and natural soils. This study is testing both water and solids to evaluate partitioning.
- **Monitoring study to characterize storm event runoff for a suite of pollutants, including 6PPD-quinone, in stormwater runoff from site draining highway and mixed residential land uses (King County Environmental Lab):** This study is collecting grab samples across 15 storm events at the I-5 Ship Canal Testing Facility to characterize stormwater runoff from mixed land uses (residential and highway) draining to this facility. These runoff samples are a pilot study to gather information on the range of concentrations of 6PPD-quinone for stormwater management approach evaluations.

- **Monitoring study to characterize stormwater BMP influent concentrations of 6PPD-quinone and BMP testing protocols suitability for this parameter (Herrera Environmental Consultants):** This pilot project is gathering some initial information on whether the new pollutant 6PPD-quinone can be reliably evaluated using the established Technology Assessment Program – Ecology (TAPE) protocol for BMP testing. This project will evaluate runoff treatment of the influent to and effluent from a couple active TAPE studies - BMPs being tested for TAPE approval - for 6PPD-quinone concentration reductions. Samples are being collected both at the I-5 Ship Canal Testing Facility (Seattle) and the Stormwater Technology Testing Center (Portland). A single set of samples is being analyzed by both King County Environmental Lab and Manchester Lab to compare laboratory methods and results.

Ecology funding is also being leveraged to extend two SAM projects:

- **Determining an optimal media depth and longevity of bioretention media for effective stormwater treatment (Washington State University-Puyallup):** This SAM study is assessing how long bioretention media housed in bench-scale columns can effectively prevent acute mortality to coho. Ecology's funds extended the project by adding 3 more water years, bringing the total duration up to 13 water years. Water chemistry of the influent and effluents, as well as toxicity to coho are assessed.
- **Conducting a pilot street sweeping effectiveness study (City of Redmond):** This SAM study is a long-term paired watershed monitoring study aimed at quantifying the level of effort needed for stormwater management to produce detectable results in receiving waters. As part of this project, a couple of smaller sub-projects are evaluating individual BMP effectiveness used in the assessment watersheds. Ecology's funds add the parameter 6PPD-quinone and PAH's to the existing sub-project to evaluate the street sweeping BMP at different sweeping frequencies.

5.2.12. Other Studies on Toxics Loading from Stormwater

Ecology monitored building materials and atmospheric deposition in areas of Lacey and Olympia, Washington, and found that high levels of copper and zinc are released each year from materials including streetlight poles, building roofing and siding materials, chain-link fencing, and roof gutters during rainfall events. The primary sources of copper were vehicle brake wear, building roofing and siding materials, treated lumber, and vehicle exhaust. The main sources of zinc were moss control products, building siding, vehicle tire wear, chain-link fence, roofing materials, and vehicle brake wear. New asphalt shingles with algae resistance were found to be particularly significant sources of both copper and zinc.^{48,49}

5.2.13. Phthalates in Sediment

Phthalates are an example of a ubiquitous pollutant that exists throughout the urban environment. However, critical knowledge gaps still exist about phthalates in aquatic environments and ecosystems. The scope of phthalate contamination in the environment has only been partially investigated in Washington state, and evaluation of effects on aquatic biota remains incomplete.

The Sediment Phthalates Work Group was convened in 2006 to address the re-contamination of cleaned up sites in urban bays of Puget Sound. The Duwamish and Foss Waterways are Superfund sites in which sediment samples showed contamination by phthalates after costly sediment cleanups. Phthalates were not among the original contaminants of concern that led to the cleanup and are pollutants of more contemporary origin than those addressed by the cleanup.

The work group was charged with identifying the sources and pathways for the phthalates and making recommendations regarding the newly contaminated sediments. This workgroup evaluated information to better understand how phthalates are reaching Puget Sound. The work group identified data gaps, made recommendations, and developed a comprehensive problem statement that included the following findings.⁵⁰

- Billions of pounds of plasticized polyvinyl chloride (PVC) products are currently in use in urban environments, and these materials off-gas phthalates into the surrounding atmosphere for many years.
- Volatilized phthalates adhere to fine particulates in the air and eventually settle onto impervious surfaces and soil.
- Stormwater washes the phthalate-contaminated particulates into storm drains and subsequently into natural water bodies and sediments, where the concentrations and loadings of phthalates can build up over time.
- Although phthalates do not readily bioaccumulate, large amounts loaded into sediments are toxic to benthic organisms.

The work group report acknowledged that it may not be feasible to remove some pollutants such as phthalates from stormwater once they are in the environment. Source control solutions to reducing these pollutants may include finding alternatives to use in manufacturing the products that contain them. Their widespread uses make them somewhat ubiquitous in the contemporary urban setting. Phthalates and some other pollutants will require broader societal efforts to address the contaminants resulting from the manufacturing processes for many products widely used in contemporary society.

Since the work group report, Ecology has continued to make progress:

- In 2011, Ecology published a report that summarizes primary sources of chemicals in the Puget Sound. Phthalates were one of the chemicals assessed in the report, and they estimated total phthalate release from various materials and products into Puget Sound at 34 metric tons per year: Control of Toxic Chemicals in Puget Sound (Ecology, 2011, Publication No. 11-03-024)⁵¹
- Ecology has also been working to draft a Phthalates Action Plan to make recommendations to reduce exposure and environmental contamination with respect to phthalates in WA State – the draft was recently published on May 1, 2023: [Draft Phthalates Action Plan](#)⁹ (Ecology 2023, Publication No 23-04-025)
- During development of the Phthalates Action Plan, EAP also conducted and published a study on phthalates in Washington State waterbodies: [Statewide Survey of Phthalates \(wa.gov\)](#)¹⁰. (Ecology 2022., Publication No. 22-03-027)
- Ecology’s Safer Products for Washington Program adopted a rule on May 31, 2023 that would restrict use of phthalates in vinyl flooring and as a component of fragrances used in personal care and beauty products: [Safer products restrictions and reporting](#)¹¹

5.2.14. Climate Change

Ecology will be funding a King County proposal to lead a study involving climate science experts and affected state and local government agencies to determine the stormwater effects of climate change in the region. Working with University of Washington’s Climate Impacts group, the study will be looking to take larger scale global climate models and downscale them to better reflect local conditions. The study will not be complete until after the draft Permits are released for public comment. Ecology will analyze and disseminate the findings of the study after its completion. These findings may influence future stormwater management guidance, policies, and regulations in the state.

The Western Washington Hydrology Model (WWHM) is the continuous hydrologic modeling software that is used to size and design stormwater control facilities in Western Washington already incorporates climate change since it uses continuous historic rainfall records from 1948-2009. The historic rainfall records in the continuous hydrologic model may be updated in this Permit cycle when Ecology releases updates to WWHM that incorporate more recent years of rainfall data. Thus, the model adjusts to the extent that the most recent rainfall records reflect the changing climate.

⁹ <https://apps.ecology.wa.gov/publications/SummaryPages/2304025.html>

¹⁰ <https://apps.ecology.wa.gov/publications/documents/2203027.pdf>

¹¹ <https://lawfilesexternal.wa.gov/biennium/2023-24/Pdf/Bills/House%20Passed%20Legislature/1047-S.PL.pdf?q=20230613153923>

In Eastern Washington, single event modeling is used to size and design stormwater control facilities. This modeling is based on widely accepted theoretical rainfall patterns not tied directly to local rainfall records. Ecology has not yet analyzed the impacts of climate change on this modeling approach to determine if changes to Eastern WA stormwater facility design standards are needed but may do so in the future. Laws and Regulations

5.2.15. Federal Clean Water Act

These Permits implement sections of the Federal Clean Water Act (CWA), the U.S. Environmental Protection Agency rules, and the Washington State Water Pollution Control Act (RCW 90.48).

The Federal Clean Water Act (CWA, 1972, and later modifications in 1977, 1981, and 1987) established water quality goals for the surface waters of the United States. One of the mechanisms for achieving goals of the CWA is the National Pollutant Discharge Elimination System (NPDES) permitting program. In Washington State, Ecology has been delegated authority to administer the NPDES program for most dischargers, including most municipal stormwater dischargers. Chapter 90.48 RCW defines Ecology's authority and obligations in administering the NPDES permit program.

As part of the 1987 CWA amendments, Congress added section 402(p) to cover stormwater discharges to waters of the United States. Under the Federal Clean Water Act (33.U.S.C. Section 1342(p)(3)(B)), permit requirements for discharges from municipal separate storm sewer systems include:

Municipal Discharge – Permits for discharges from municipal storm sewers:

- (i) May be issued on a system-or jurisdiction-wide basis;
- (ii) Shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and
- (iii) Shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques, and system design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.

Congress phased in NPDES requirements for municipal stormwater discharges in two phases. Phase I includes medium and large municipalities. Populations of over 250,000 are defined as "large," while those with populations between 100,000 and 250,000 are defined as "medium" municipalities.

In the 1987 CWA amendments, Congress directed EPA to study remaining sources of stormwater discharges and, based on the study, to propose regulations to designate and control other stormwater sources. These regulations, which are commonly known as the Phase II rules, were adopted by the EPA in December 1999. The Phase II rules extend coverage of the (NPDES) program to certain “small” municipal separate storm sewer systems.

5.2.16. EPA Rules

U.S. EPA implementing regulations define the term “municipality” to mean incorporated cities and unincorporated counties that have sufficient population in a Census Bureau designated urban area to meet the population thresholds.

In addition, the EPA rule requires permit coverage for other public entities (excluding incorporated cities), regardless of their size, that own and operate storm sewer systems located within the municipalities that meet the population thresholds. Examples of other publicly owned storm sewer systems include state highways, ports, drainage districts, school districts, colleges and universities, and flood control districts located within permitted municipalities. Ecology uses the term “Secondary Permittees” for these Permittees in the Phase I and Phase II Permits.

Recognizing the complexity of controlling stormwater, Congress and EPA established a regulatory framework for municipal stormwater discharges that is different from traditional NPDES permit programs. Some of the key provisions of the stormwater rules that reflect these differences are:

- Permits require the implementation of stormwater management *programs* rather than establishing numeric effluent standards for stormwater discharges (40 CFR 122.26(d)(2)(iv)).
- Permits cover a large geographic area rather than individual “facilities.” Within a permit coverage area there may be hundreds or thousands of individual outfalls discharging to surface water (40 CFR 122.26(a)(3)).
- Flexibility that allows Permittees to first focus their resources on the highest priority problems (40 CFR 122.26(d)(2)(iv)).
- Pollution prevention is emphasized with some provisions requiring eliminating or controlling pollutants at their source and by requiring Permittees to assess potential future impacts due to population growth and other factors (40 CFR 122.26(d)(2)(iv)(B) & (d)(1) (iii)).

EPA rules for discharges from large and medium MS4s did not establish actual permit requirements. EPA allowed the permitting authority flexibility to establish permit requirements that are appropriate for the local area under Phase I regulation.

The Phase II rules require the development, implementation, and enforcement of stormwater management programs designed to reduce the discharge of pollutants from MS4s to the maximum extent practicable (MEP), protect water quality, and satisfy the appropriate water quality requirements of the Clean Water Act.

The Phase II rules outline the minimum elements of a Stormwater Management Program (SWMP) which must include:

1. Public education and outreach on stormwater impacts
2. Public involvement and participation
3. Illicit discharge detection and elimination
4. Construction site stormwater runoff control
5. Post-construction stormwater management in new development and re-development
6. Pollution prevention and good housekeeping for municipal operations.

In addition to the above six minimum measures, the Phase II rules also require:

1. Compliance with approved total maximum daily load (TMDL, or water cleanup plan) or equivalent analysis, where appropriate, and
2. Evaluation and assessment of program compliance.

The Phase II rules require Ecology to “make available a menu of BMPs to assist regulated small MS4s in the design and implementation of the municipal storm water management programs to implement the minimum measures specified in (40 CFR) 122.34(b) of this chapter.” The *Stormwater Management Manual for Eastern Washington* and the *Stormwater Management Manual for Western Washington* meet this requirement in regard to construction site stormwater control and post-construction stormwater management in new development and re-development.

In 2016, EPA completed rulemaking known as the MS4 General Permit Remand Rule addressing a partial remand of the Phase II stormwater regulations by the U.S. Court of Appeals for the Ninth Circuit. The final MS4 General Permit Remand Rule establishes alternative approaches an NPDES permitting authority can use to issue and administer small MS4 general permits: 1) Traditional General Permit Approach; 2) Procedural Approach; or 3) “States-choice” which is a hybrid option of traditional and procedural. Ecology follows the traditional general permit approach to administer the Phase II Permits.

On April 15, 2020, EPA published the Final MS4 Updates to National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule. This regulation requires the electronic reporting and sharing of Clean Water Act NPDES program information instead of the current paper-based reporting of this information.⁵² The updates reflected changes that were made based on the Remand Rule.

In March 2022, the US Census Bureau revised criteria for defining “urban areas” based on the results of the 2020 Census and will no longer distinguish between different types of urban areas, including “urbanized areas”. Because the Phase II regulations are written to cover MS4s located in “urbanized area[s] as determined by the latest Decennial Census,” on December 2, 2022, EPA published a proposed rule to clarify the Phase II regulations. “Urbanized areas,” as defined by the Census Bureau when the Phase II regulations were issued in 1999, comprise areas “that together have a minimum population of 50,000 people.” The proposed rule would replace the term “urbanized areas” in the federal regulations with “urban areas with a population of at least 50,000.”

In July 2022, EPA also issued “Interim Guidance on Census Elimination of “Urbanized Area” Definition” which provided the following guidance for permitting authorities take with respect to new or expanded small MS4s based on the 2020 Census:

The Census Bureau has not yet published mapping data based on the 2020 Census. Prior to the publication of these data, EPA does not expect permitting authorities to make formal designations of new or expanded small MS4s based on the 2020 Census. Additionally, even after publication of the 2020 Census data, permitting authorities may delay decisions regarding the designation of new or expanded small MS4s based on the 2020 Census until EPA has provided direction on this issue. A permitting authority is not, however, precluded from using its designation authority to regulate additional or expanded small MS4s to protect water quality.

Where a current small MS4 permit is set to expire, or where a small MS4 permit has already expired without a replacement permit, to reduce permit backlog EPA recommends that the permitting authority move forward with reissuing the permit based on the currently designated small MS4s (based on the 2010 Census), along with any additional MS4s that the permitting authority designates based on its belief that they should be permitted to protect water quality under 40 CFR § 123.35(b). EPA acknowledges that this may mean issuing a permit without the inclusion of new or expanded small MS4s that could be regulated in the future if EPA subsequently changes the regulated MS4 definition.

On June 7, 2023, EPA signed the final rule, NPDES Small MS4 Urbanized Area Clarification to clarify the designation criteria for small MS4s following the Census

Bureau's urban mapping revisions. The clarifications in this final rule replace the term "urbanized area" in the Phase II regulations with the phrase "urban areas with a population of at least 50,000," which is the Census Bureau's longstanding definition of the term urbanized areas. The final rule ensures that the automatic designation criteria for MS4s remains the same as it has since the start of the Phase II program. Ecology will evaluate 2020 Census maps as additional information and guidance becomes available. The change in EPA language does not change any designation of existing Permittees.

5.2.17. The State Water Pollution Control Act and Implementing Regulations

In addition to requirements in federal law, there are state law requirements for the control of pollution in Chapter 90.48 RCW, known as the Water Pollution Control Act. RCW 90.48.010 establishes that it is:

the public policy of the state of Washington to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state of Washington.

The terms "pollution" and "waters of the state" are defined in Chapter 90.48.020 RCW. Waters of the state "...shall be construed to include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and watercourses within the jurisdiction of the state of Washington." This definition differs from the federal definition of "waters of the United States" which is limited to surface waters. State law requires a permit to regulate discharge of pollutants or waste materials to waters of the state (Chapter 90.48.162 RCW). In 1987 the State Legislature passed into law Chapter 90.48.520 RCW. When issuing or renewing state and federal wastewater discharge permits, Ecology must review the applicant's operations and incorporate permit conditions which require all known, available, and reasonable methods to control toxicants in the applicant's wastewater. The law prohibits the discharge of toxicants which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria (Chapter 90.48.520 RCW).

Chapter 90.48.035 RCW grants Ecology authority to adopt standards for the quality of waters of the state. Ecology has adopted the following standards:

- Chapter 173-200 WAC Ground Water Quality Standards;
- Chapter 173-201A WAC Water Quality Standards for Surface Waters; and
- Chapter 173-204 WAC Sediment Management Standards.

These standards generally require that permits that Ecology issues ensure that discharges will not violate standards, or that a compliance schedule be in place to bring discharges into compliance.

The Waste Discharge General Permit Program regulation, Chapter 173-226 WAC, establishes a general permit program for the discharge of pollutants, wastes, and other materials to waters of the state. One of the requirements (Chapter 173-226-110 WAC) for issuing a general permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet.

6.0 Relationship to Other Stormwater Permits

EPA stormwater regulations establish NPDES permit requirements for stormwater discharges from industrial facilities, construction sites, small, medium, and large municipal separate storm sewer systems (Phase I), and the Washington State Department of Transportation.

6.1. Industrial Stormwater General Permit

The federal stormwater regulations envision a cooperative relationship between industrial stormwater Permittees that discharge to municipal separate storm sewer systems (MS4s) and those municipal Permittees. In Washington State, a wide range of industrial facilities listed at 40 CFR 122.26(b)(14) must obtain coverage under Ecology's Industrial Stormwater General Permit, which authorizes discharges to surface waters or to MS4s that discharge to surface waters. Ecology has also issued several industry-specific permits that authorize stormwater discharges from those facilities, including the Sand and Gravel General Permit and the Boatyard General Permit.

6.2. Construction Stormwater General Permit

Under this permit, Permittees must adopt and implement measures to control discharges into the MS4 system from construction sites, including sites regulated by Ecology's Construction Stormwater General Permit. The Construction Stormwater General Permit is issued by Ecology to individual construction site operators for projects of one acre or more, or for projects of less than one acre that are part of a larger, common plan of development or sale. Construction site operators that are covered under and operating in compliance with the Construction Stormwater General Permit will be in compliance with the construction site runoff control requirements of the Municipal Stormwater Permit. Local jurisdictions may add additional requirements for construction site operators to address local conditions or concerns. Local jurisdictions also coordinate with and complement Ecology's regulation of construction sites to prevent pollutants from those sites from entering the MS4.

6.3. Washington Department of Transportation Municipal Stormwater General Permit

The Washington Department of Transportation (WSDOT) is a statewide agency that owns and operates municipal separate stormwater systems that carry discharges from highways, maintenance and storage facilities, ferry docks, and other WSDOT facilities. Discharges from WSDOT MS4s are authorized under a single statewide Permit for MS4s in Phase I and Phase II coverage areas, and in areas with applicable TMDLs. The WSDOT Municipal Stormwater Permit was first issued in 2009 and reissued in 2014 and 2019.

The WSDOT Municipal Stormwater Permit includes requirements similar to the Municipal Stormwater General Permit to conduct public education and involvement, prevent and address polluting illicit discharges, and for operations and maintenance. Requirements for WSDOT construction sites and for managing stormwater discharges from new and re-development projects are consistent with the requirements in the Phase I Permit, except they are tailored to highway construction. WSDOT's Permit also includes a monitoring program to evaluate the effectiveness of its stormwater management program.

WSDOT stormwater conveyances frequently interconnect with MS4s covered under these Permits. This requires WSDOT and municipal Permittees to work together to control illicit discharges, respond to spills and dumping, and, where they discharge to shared water bodies, to implement TMDLs.

7.0 Antidegradation

7.1. Background

Federal regulations (40 CFR 131.12) and the Water Quality Standards for Surface Waters of the State of Washington (Chapters 173-201A-300, 310, 320, 330 WAC) establish a water quality antidegradation program. The purpose of the antidegradation program is to:

- Restore and maintain the highest possible quality of the surface waters of Washington;
- Describe situations under which water quality may be lowered from its current condition;
- Apply to human activities that are likely to have an impact on the water quality of surface water;
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART); and
- Apply three Tiers of protection (described below) for surface waters of the state.

The federally mandated program establishes three tiers of protection for water quality. Tier I ensures the maintenance and protection of existing and designated uses. Tier I applies to all waters and all sources of pollution. Tier II prevents the degradation of waters that are of a higher quality than the criteria assigned, except where such lowering of water quality is shown to be necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as “outstanding resource waters,” and applies to all sources of pollution.

These Permits address antidegradation of Tier I and Tier II waters. Ecology has determined that there are no coverages under this Permit to Tier III waters.

7.2. Formal Adaptive Process to Comply with Chapter 173-201A-320(6) WAC

Washington’s Tier II requirements for general permits are outlined in Chapter 173-201A-320(6) WAC:

- a) Individual activities covered under these general permits or programs will not require a Tier II analysis.
- b) The department will describe in writing how the general permit or control program meets the antidegradation requirements of this section.
- c) The department recognizes that many water quality protection programs and their associated control technologies are in a continual state of improvement and development. As a result, information regarding the existence, effectiveness, or costs of control practices for reducing pollution and meeting the water quality standards may be incomplete. In these instances, the antidegradation requirements of this section can be considered met for general permits and programs that have a formal process to select, develop, adopt, and refine control practices for protecting water quality and meeting the intent of this section. This adaptive process must:
 - i. Ensure that information is developed and used expeditiously to revise permit or program requirements;
 - ii. Review and refine management and control programs in cycles not to exceed five years or the period of permit reissuance; and
 - iii. Include a plan that describes how the information will be obtained and used to ensure full compliance with this chapter. The plan must be developed and documented in advance of the permit or program approved under this section.
- d) All authorizations under this section must still comply with the provisions of Tier I (Chapter 173-210A-310 WAC).

7.3. How the Municipal Stormwater Permits Meet the Antidegradation Requirement

Ecology's process for reissuance of the Municipal Stormwater General Permits includes a formal process to select, develop, adopt, and refine control practices for protecting water quality and meeting the intent of Chapter 173-201A-310 WAC. All Permits are issued for a fixed term of five years. Each time Ecology reissues the Municipal Stormwater General Permits, it evaluates the Permit conditions to determine if additional or more stringent requirements should be incorporated.

Ecology's evaluation of the Municipal Stormwater Permits includes an ongoing review of information on new pollution prevention and treatment practices for storm water discharges. Sources of such information include:

1. *Comments on draft Permits.* Ecology's public process for developing the 2024 proposed Permits includes the following:
 - a. In fall of 2021, Ecology requested early input on recommended permit updates. A Permittee and Non-Governmental Organization (NGO) led process in 2021-2022 generated substantive recommendations and comments ahead of listening sessions.
 - b. In June 2022, Ecology staff held four virtual listening sessions and used the feedback to inform Permit revisions for all sections of the Permits.
 - c. In 2021 and 2022 Ecology hosted two stakeholder groups, one technical and one policy to review and discuss the updates that may be needed for the Phase I Structural Stormwater Control (SSC) Program and a proposed approach for a Phase II retrofit program. The technical group focused on the science review of the SSC program and policy group focused on proposed changes to permit language and recommendations for Phase II Permit.
 - d. In Oct-Dec 2022 and again in February – March 2023, Ecology requested informal comments on preliminary draft Permit language related to Stormwater Planning, mapping, IDDE, O&M, Monitoring and Assessment (Eastern WA), updates to thresholds in Appendix 1 of all three permits, Structural Stormwater Controls (Phase I), and a new program for WWA Phase II related to stormwater retrofits and management for existing development. Proposed changes to the SWMMs were also offered for public review and comment. These informal comment periods generated over 70 letters and hundreds of comments on the topics.
 - e. Ecology will review and use public comment and testimony from public hearings during the public comment period on the draft Permits to develop the final Permits.

2. *Ecology's Stormwater Management Manuals.* Ecology periodically updates the stormwater management manuals based on new information and science. The update process includes a public involvement element. Since the Municipal Stormwater Permits require Permittees to select BMPs from the most recent edition of the stormwater manuals (or a program approved as functionally equivalent), the BMPs contained in updated stormwater manuals are adopted by Permittees. This improves the effectiveness of stormwater controls for protecting water quality and meeting the intent of the antidegradation provisions of the water quality standards. Ecology is providing an updated draft of the *Stormwater Management Manual for Western Washington and Eastern Washington*^{53, 54} for public comment concurrent with the draft Municipal Stormwater General Permits.
3. *Technology Assessment Protocol – Ecology (TAPE) process.* This formal process reviews and tests emerging treatment technologies for eventual adoption in Ecology's stormwater management manuals. The TAPE review process stimulates the development and use of innovative stormwater technologies used at construction sites and in new and redevelopment projects. There are more than 30 Manufactured Treatment Devices (MTDs) with General Use Designations and many other MTDs going through their field monitoring in Washington State and at pre-approved TAPE monitoring sites across the U.S.
4. *Washington Stormwater Center research.* Ecology helped establish and fund the Washington Stormwater Center (the Center) and affiliated Low Impact Development research program to conduct stormwater technical research. The Center works in partnership with state academic institutions partners including Washington State University Puyallup Campus and the University of Washington Urban Waters Program in Tacoma. The Center disseminates information on current research and training opportunities to municipalities and businesses. The Center has recently added more staff to assist with Education and Outreach permit requirements as well as staff to support Industrial and Construction stormwater permit needs.
5. *Permittee compliance reports.* Each Permittee submits to Ecology an Annual Report, monitoring results, and special submittals by Permittees for alternative approaches to maintenance or detection of illicit discharges. Ecology staff review and act on Annual Reports to address compliance issues and provide technical assistance. A statewide Ecology Municipal Stormwater Permit Team produces written guidance and Permittee training opportunities to disseminate information on improved BMPs.
6. *Permit audit program.* The Ecology Municipal Stormwater Permit Team uses the Annual Report reviews to serve as an initial audit of SWMP implementation. When appropriate, the Permit Team also reviews specific programs being implemented in-depth. The audits reveal where Permit language might need clarification or emphasis.
7. *Recent work on emerging and legacy pollutants –specifically 6PPD, PFAS, PCBs.*

6PPD

The antioxidant 6PPD and its transformation byproduct 6PPD-quinone (6PPD-q) are chemicals that were recently discovered to come from tires and enter waterways through roadway runoff (stormwater). 6PPD-q has been linked to high mortality rates in coho salmon on the west coast of the United States. There are still many data gaps surrounding 6PPD and 6PPD-q, including: fate and transport, how 6PPD and 6PPD-q interact with the environment, the relative effectiveness of different stormwater best management practices (BMPs) at capturing and treating these chemicals, and unknown, variable effects on aquatic organisms, ecosystems, and humans.

At this point there are no accredited laboratories for 6PPD-quinone sampling. This is important because data collection needs to be reliable in order to develop regulatory processes. Ecology's stormwater permit program is well designed to respond to ubiquitous contaminants like 6PPD as many of the stormwater management programs are designed to address stormwater runoff from roads. Based on what we have learned to date, many of the stormwater BMPs already implemented to comply with the Permits and Ecology's stormwater manuals (e.g., bioretention, infiltration, etc.), are presumed to be effective at capturing and treating 6PPD-q. To verify how effective BMPs are at capturing and treating 6PPD and 6PPD-q, we are currently funding BMP effectiveness research studies through contracts and other agreements. Other 6PPD-related funding sources include the SAM Collective and the NEP Puget Sound Strategic Initiative. We are supporting on-the-ground stormwater management actions and projects through increased grant funding to local governments. We are also providing a forum for sharing information across sectors to gather and adapt to new information. While the next version of the manuals will be finalized July 2024, any new information on 6PPD and the effectiveness of stormwater management practices can be added to the emerging guidance section of the manuals past this date. Ecology reviewed the Stormwater Management Program components to assess where requirements could be enhanced or made to be more effective to address road runoff and 6PPD. We expect several proposed updates to the permit requirements will provide benefits to address road and tire wear sources, such as:

- Reduced project thresholds to require runoff treatment with newer and redevelopment projects;
- First time requirements for street sweeping for both Phase I and II;
- First time stormwater retrofits required for Phase II Permittees;
- New minimum requirements for structural stormwater facility retrofits for Phase I Permittees; these are runoff treatment and flow control facilities that are often part of transportation projects and;
- Incentives for retrofits projects in High Pollutant Generating Transportation areas for Phase I
- Incentives for watershed collaboration in retrofit projects; this adds another tool for addressing 6PPD hot spots where they cross municipal boundaries.

These proposed updates are in addition to the existing requirements that reduce pollution in transportation runoff such as controlling runoff from new and redevelopment, retrofit requirements for existing development, IDDE, stormwater planning, operations and maintenance, and source control.

PFAS

Per and Polyfluorinated Substances (PFAS) are manufactured, synthetic substances that include thousands of chemicals. These chemicals have been used in many industry and consumer products since the 1940's. PFAS can enter soil, water, and air from various sources and is being detected in many matrices including municipal and industrial stormwater effluent. Specifically, PFAS has been detected in the stormwater of urban industrial catchments and these discharges are considered to be a pathway for the uncontrolled release of PFAS into surface waters, both fresh and marine. PFAS being discharged from stormwater outfalls near sites with known discharges of Aqueous Firefighting Foam (AFFF) are a primary concern for Ecology when administering stormwater permits (Ecology and DOH, 2022).^{55, 56} The 2024 Permits propose requirements to address the firefighting foam sources.

Ecology plans to prioritize funding to investigate PFAS contamination in surface waters, which includes investigating stormwater transport from multiple sources as a potential source of contamination. The science is still evolving on the toxic effects of PFAS exposure to aquatic life. Monitoring data from multiple sources statewide, such as monitoring studies of surface waters, stormwater outfalls and PFAS testing of groundwater, for example, will help Ecology have a clearer understanding of how much PFAS is being discharged via stormwater runoff vs other pathways, and evaluate the possible effects of PFAS on aquatic life as well as human health in receiving waterbodies.

PCBs

PCBs are a group of 209 man-made compounds that generally occur as complex mixtures. PCBs are very persistent, lasting for decades in the environment. Like other persistent, bioaccumulative, and toxic chemicals, PCBs move easily between air, water, and land. They are found throughout Washington State. PCBs also bioaccumulate in people and animals, becoming more concentrated in organisms at the top of the food chain, like orcas. Ecology proposes adding new requirements to the 2024 permits related to stormwater management for buildings with materials that contain polychlorinated biphenyls (PCBs). For this proposal, we also reviewed the Stormwater Management Program components to enhance or make more effective use of existing BMPs to address sources of PCBs, including education and outreach, IDDE, and Operations and Maintenance. BMPs in the SWMMs were also reviewed to better address PCBs based on recent guidance.

8. The low impact development requirements in the Municipal Stormwater Permits are part of the adaptive process to improve stormwater management and protect surface waters from degradation. Low impact development stormwater management for new and redevelopment projects is a nationally recognized innovative land use and stormwater management approach. Ecology's Permits require LID at levels appropriate to the experience and physical conditions in each region. In Western Washington, LID must be the "preferred and commonly used approach" to new and redevelopment. In Eastern Washington, where onsite retention is a common practice, but not necessarily through specific LID BMPs, the Permit requires that local development codes shall allow LID practices and BMPs. LID guidance specific to eastern Washington was developed during the 2014 Permit term and is proposed to be incorporated in the updated SWMMEW. These statewide requirements support a fundamental shift to LID stormwater design and management in new and redevelopment that help meet the antidegradation requirements of WAC 172-203A-320(6). Ecology funded an update to the Western Washington Hydrologic Model to address LID BMPs. Ecology continues to fund guidance and training on LID BMPs statewide.
9. As described above, the thresholds and standards that are applied to new and redevelopment projects intend to manage stormwater runoff onsite or to mitigate the volume, velocity and pollutant loading from the project site. The proposed updates to the thresholds and additions of stormwater retrofits for existing development requirements will provide more stormwater management when and where it is needed.
10. Stormwater Action Monitoring (SAM Collective), Eastern Washington effectiveness studies, and stormwater discharge monitoring. The monitoring proposals in the draft Permits also help satisfy the anti-degradation requirements for adaptive management. The draft Permits continue to require monitoring studies to evaluate the effectiveness of individual BMPs and/or elements of stormwater programs. The proposal for monitoring status and trends in Puget Sound and Lower Columbia receiving waters continues to provide information to evaluate water quality changes in urban areas where programs are being implemented.

8.0 Explanation of Permit Revisions

The following section describes the rationale for proposed changes to the Permits. Unless specified otherwise, the explanations apply to all three of the Permits, i.e., the Phase I, WWA Phase II, and EWA Phase II Permits. The rationale for Permit-specific changes is clearly identified with sub-headings, (e.g., Proposed changes to Western Washington (WWA Phase II: S5.C.2; Phase I: S.5.C.11, etc.). Throughout the Permits, title headings are added, minor revisions made for consistency across permits, and formatting is updated for accessibility.

8.1. S1 – Permit Coverage and Permittees

This section defines the areas covered by the Permits, the entities that are to be covered under the Permits, and how to obtain Permit coverage.

No significant changes proposed.

8.1.1. S1.A Geographic Area of Permit Coverage

The Phase I Permit authorizes discharges from large and medium Municipal Separate Storm Sewer Systems (MS4s), as defined by EPA at 40 CFR 122.26(b)(4) and (7). Large MS4s are defined as all municipal separate storm sewers located in either: an incorporated city with a population over 250,000 in the 1990 census; or a county with a population over 250,000 in the unincorporated portion of the county that falls within an urbanized area, as defined in the 1990 census. The definition of a Medium MS4 is basically the same, with a population threshold of more than 100,000 and up to 250,000 people. The Permittees covered under the Phase I Permit were determined by the 1990 census and therefore no new city/county Permittees will be added to the Phase I Permit. No significant changes to S1 of the Phase I Permit are proposed (see discussion below under S1.D regarding proposed changes to the Notice of Intent).

8.1.2. This remaining section on S1 applies to Phase II Only:

For the Phase II Permits, the areas covered by the permit include the entire incorporated area of a city, as described Western and Eastern Phase II S1.A.1.

This section is updated to be aligned with EPA's 2023 Final Phase II Rule clarification related to Census Bureau Urban Area Designation criteria. Urbanized Area is no longer used in the regulations, and it has been replaced, for the most part with: urban areas with a population of at least 50,000. Urban Area definition in the Glossary is consistent with this definition and the term urbanized area is replaced with urban area throughout the Phase II Permits.

To be regulated by the Phase II Permit, small MS4s must:

- Be located within, or partially within, a census-defined Urban Area or otherwise designated by Ecology;
- Discharge stormwater to a surface water of Washington State; and
- Not be eligible for a waiver or exemption.

The 2020 Census defines "Urban areas as a densely developed territory, and encompass residential, commercial, and other nonresidential urban land uses. Each urban area must encompass at least 2,000 housing units or at least 5,000 people." EPA's June 2023 Rule clarified that new small MS4 designations will be based on whether the previously unregulated MS4s are located in urban areas with a population of 50,000 or more people. The urban areas in this formal draft Permit are based on the 2010 population census and the most current Washington State Office of Financial Management population estimates (2022 population estimates available in April 2023).⁵⁷ As discussed

earlier, during 2021-2023 while the Census Bureau and the EPA updated their definition of urban areas, EPA's interim guidance to states was to use the 2010 Census urbanized areas while preparing for permit reissuance. Ecology followed that guidance while evaluating new areas to be included in the formal draft. See discussion in Section 5 of this document regarding EPA rules. The change in EPA language does not change any designation of existing Permittees.

For Phase II counties, Permits cover the census-defined urban area, that extends outside the city. Ecology also includes the county unincorporated Urban Growth Areas (UGA) around Phase II cities where they extend outside of the census-defined urban areas, as described in the first part of S1.A.2. Ecology determined that this is appropriate in Washington State because the Permits are designed to address the urban impacts of stormwater, and Washington State has defined UGAs in Chapter 36.70A RCW, the Growth Management Act (GMA), as areas where jurisdictions must direct and concentrate urban growth.

Ecology may designate additional areas for coverage. While preparing for the 2024 permit cycle, the 2020 Census maps were not yet available until the end of 2022. EPA's interim guidance, while they were determining how to clarify the regulations based on the new urban area definition, was to continue to use the Census' 2010 urbanized area maps. Based on that guidance, Ecology evaluated the cities of: South Prairie, Ridgefield, Yelm, Port Townsend, Carnation, Yarrow Point, Woodway, Grandview, Moxee, Naches, Cheney, and Airway Heights. Ecology also evaluated the unincorporated UGAs of: Clallam County, for Port Angeles UGA; Mason County, for Shelton; Island County, for Oak Harbor UGA; Kittitas County, for Ellensburg UGA; and Grant County, for Moses Lake UGA.

Of those evaluated, Ecology determined two jurisdictions warrant permit coverage under the Permits to be effective August 1, 2024: cities of Ridgefield and Yelm. Thurston County, an existing Permittee, will have permit coverage expanded to include the Urban Growth Area surrounding Yelm. Ecology lists those jurisdictions in the draft Permit for public review and comment. The second part of Western Washington Phase II S1.A.3 lists the county because it's not associated with census-defined urban areas. Sound Transit is a new Secondary listed as a proposed new permittee.

At the current time, the EPA has been working to develop maps of Census-defined urban areas with a population of 50,000 or more people. Ecology will evaluate these new areas that are designated for permit coverage as more information and guidance become available.

8.1.3. S1.B. Regulated Small MS4s

This section defines the entities that must obtain coverage under the Phase II Permit. Ecology proposes only minor changes to this section to clarify or simplify language. No significant changes proposed.

8.1.4. S1.C. Exemptions and Waivers

This section describes the entities that do not need to obtain coverage under the Permits if the conditions in this section are met. EPA administers the Municipal Stormwater Permit program for federal facilities and most federally recognized Indian Tribes. Proposed language changes to better align with phrasing from the federal regulations.

All MS4s of any size that are owned or operated by Washington State Department of Transportation (WSDOT) are not covered under these Permits because they are covered under a separate stormwater Permit. A copy of the WSDOT Permit is available at [WSDOT Municipal Stormwater Permit - Washington State Department of Ecology](#).¹²

No significant changes proposed.

8.1.5. S1.D Obtaining Coverage and Entities Covered by the Permit

The Permittees listed in (S1.D.2.a) are continuing Permittees from the current Permit terms. In accordance with General Condition G18 of the current (2019) Permits, all Permittees named in (S1.D.2.a) will reapply for Permit coverage by submitting a timely Permit reapplication (*Duty to Reapply – Notice of Intent (NOI)*) prior to February 1, 2024 (WWA) and will have continuing coverage under these Permits.

Ecology includes a placeholder in (S1.D.2.b) for possible New Permittees that are brought under the final Permits if the evaluations Ecology is conducting demonstrate that a jurisdiction or area meets the criteria for coverage. Cities and county areas under evaluation for Permit coverage are listed in (S1.D.2.b.i), coverage is proposed pending completion of the evaluations, which may include considering any new information received during the comment period. If an evaluation determines that a jurisdiction meets the criteria for coverage, they may choose to submit a *Notice of Intent for Coverage under National Pollutant Discharge Elimination System Municipal Stormwater General Permit* (NOI) in advance of final Permits issuance. In this case, the jurisdiction would be listed in (S1.D.2.b) in the final Permits. If a jurisdiction chooses to wait, the draft language in (S1.D.2.b.i) requires the jurisdiction to submit a NOI to Ecology no later than 30 days after the Permit effective date of August 1, 2024.

Special condition S1.D.3 establishes an application process for New Secondary Permittees, or for Co-Permittees that are cities, towns, and counties. Cities, towns, and counties that receive coverage after the Permits' issuance date may be brought under the Permit by petition, by expansion of federal census urban areas, or other designation under an administrative order.

The Notice of Intent (NOI) is the official Permit application (for all Permits) to request coverage under these general Permits and is provided on Ecology's website. Ecology must follow EPA's

¹² <https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Municipal-stormwater-general-permits/WSDOT-Municipal-Stormwater-Permit>

electronic reporting rule and accept electronic Permit applications in order to provide the required information to EPA.

8.2. S2 – Authorized Discharges

This section of the Permits authorizes the discharge of stormwater from MS4s owned or operated by the Permittees to waters of the State, subject to certain limitations. The Permits do not authorize discharges that are authorized under other permits or programs, such as the Underground Injection Control program.

In December 2022, EPA issued guidance to states to reduce harmful PFAS pollution at their source. In the memo, EPA addressed stormwater NPDES permits and provided the following⁵⁸:

BMPs to address PFAS-containing firefighting foams for stormwater permits: Pursuant to 122.44(k)(2), where appropriate, EPA recommends that NPDES stormwater permits include BMPs to address Aqueous Film Forming Foam (AFFF) used for firefighting, such as the following:

- a. Prohibiting the use of AFFFs other than for actual firefighting.
- b. Eliminating PFOS and PFOA -containing AFFFs.
- c. Requiring immediate clean-up in all situations where AFFFs have been used, including diversions and other measures that prevent discharges via storm sewer systems.

Based on this guidance and review of recently drafted EPA MS4 Permit language for federal facilities in Washington State (e.g., EPA's 2021 Naval Air Station Whidbey Island MS4 Permit and EPA's 2023 draft Joint Base Lewis McChord MS4 Permit), Ecology proposes to update this section in each Permit to distinguish between discharges from emergency firefighting activities that involve PFAS-containing aqueous film-forming foams (AFFFs) and those that do not. This change will help municipalities better address this source of pollutants to the MS4 and receiving waters and bring requirements up to date with current EPA permit guidance while additional research and solutions are determined. Fire response planning in advance can identify various options for firefighting and contingency planning for fire wastewater capture. Where possible and as setup allows, Permittees and fire departments may consider containing and recovering AFFF used for emergencies for disposal or identify resources to assist with containing the fuel and fire water runoff should the resources not be available to fight the fire emergency and contain the runoff. The Interstate Technology Regulatory Council, a state led environmental coalition, has developed guidance for PFAS and sources, including AFFFs.⁵⁹

Clarifying language is also added that after the emergency has ceased, the non-stormwater discharges become prohibited. Determination of cessation of the emergency is at the discretion of the emergency on-scene coordinator. Conditions are proposed to emergency firefighting activities that involved PFAS AFFFs to minimize PFAS discharges to the MS4, including requirements to coordinate with local fire departments and development measures and protocols for minimizing suspension of PFAS during cleanup activities or normal operations.

8.3. S3 – Responsibilities of Permittees

Because not all parts of the Permits apply to all Permittees, S3 identifies the sections of the Permits that apply to each Permittee and explains the responsibilities of each type of Permittee.

No significant changes proposed.

8.4. S4 – Compliance with Standards

This section establishes the standards that apply and includes a notification and response requirement under special condition S4 Compliance with Standards. Condition S4.F of the Permits address discharges from municipal separate stormwater sewer systems (MS4s) that are likely to contribute to or cause a water quality standards violation in a receiving water. This section of the Permits provides an adaptive management pathway for Permittees to address those discharges. Ecology prepared a publication to clarify the Permittee's procedural responsibilities under S4.F, as well as Ecology's response procedures.⁶⁰ Phase I Appendix 13 incorporates requirements in response to a significant long-term MS4 adaptive management response effort under Special Condition S4.F.3, which applies to the city of Seattle.

Pollution Control Hearings Board (PCHB) Decision and Washington State Court of Appeals

Condition S4.F was included in the July 31, 2019, appeal by Puget Soundkeeper challenging the Phase I Municipal Stormwater Permit and the Western Washington Phase II Permits (*Consolidation and Prehearing Order; PCHB No. 19-043c*). Among other issues, the overarching S4 issues raised were:

- Does the Phase I Permit's Condition S.4 fail to require sufficiently stringent adaptive management measures to ensure the permit does not cause or contribute to violations of water quality standards?
- Do the adaptive management provisions of the Phase I Permit's Condition S.4 allow the discharge of pollutants that have not been treated with AKART and/or that fail to reduce the discharge of pollutants to MEP?

On March 18, 2022, the PCHB issued a Summary Judgement (*Order On Cross Motions Re: 2019 Phase I and Western Washington Phase II Municipal Stormwater Permits and Order On Motion To Strike*) stating that the Puget Soundkeeper had failed to put forth evidence or legal argument on these issues that would call for a departure from the Board's prior decisions on Condition S4. Puget Soundkeeper appealed the PCHB's decision on S4 to the Washington State Court of Appeals and the case was heard on March 2, 2023. At the time of publication of the formal draft, no decision has been rendered by the Court of Appeals. Ecology finds that the S4 permit language – as written continues to serve the Permits and its intent, therefore Ecology is not proposing any changes to S4.

No significant changes proposed.

8.5. S5 – Stormwater Management Program for Cities and County Permittees

8.5.1. PCB Updates that apply to multiple SWMP components and Permittee types

A. PCB Regulations

The primary federal law regulating PCBs in building materials is the Toxic Substances Control Act (TSCA) (40 CFR Part 761). Implemented by EPA in 1979, the law banned the manufacture, process, distribution, and use of PCBs in commerce, with certain exemptions.

Under TSCA, property owners must comply with use, transportation, storage, and disposal regulations for building materials that contain PCBs. Any building material that contains levels of PCBs 50 ppm or greater is considered “prohibited use” and must be abated.⁶¹

Under TSCA, EPA can regulate materials discovered to contain PCBs. Their regulations include requirements for reporting, recordkeeping, testing, and restrictions. These activities may violate TSCA:

- Using prohibited substances.
- Storing, transporting, or disposing of materials that contain PCBs in a way prohibited by federal regulations.

EPA strictly regulates the presence of PCBs greater than or equal to 50 ppm. The best way for property owners to comply is by either:

- Sampling and testing the materials for PCBs and following the PCB regulations based on the concentration.
- Following the most conservative PCB regulations.

Under TSCA, property owners must also consider and manage PCB-contaminated materials appropriately. The TSCA regulations apply to the PCB source and the contaminated areas. For example, if stormwater, wind, or washdown water carry PCBs into the soil under PCB-containing paint or caulk greater than or equal to 50 ppm, the soil may be a waste managed under TSCA regulations.

The Washington State Department of Ecology also regulates PCB wastes under the Dangerous Waste Regulations.⁶² While they regulate the management of waste materials, TSCA is much broader and also regulates PCB manufacturing, processing, distribution, and use. Property owners must meet the requirements of both rules for PCB waste. However, building materials regulated under TSCA are typically excluded by Washington’s Dangerous Waste Regulations, including most PCB bulk product waste.⁶³

Before their manufacture was banned in 1979, PCBs were added to a range of building materials used on the exterior of industrial, commercial, government, and larger residential buildings to increase the material's longevity. Without proper precautions, PCBs from paint, caulk and other joint materials, sealants, roofing, and other items can be released into the environment and enter stormwater conveyances during building washing activities. Recent guidance for characterizing and abating PCBs in building materials recommends against washing PCB-containing materials on a building's exterior as well as preventing PCB containing building materials from being transported in runoff from renovation or demolition of buildings.⁶⁴

B. PCB Updates - Background

Ecology has been working to identify and address PCBs in the environment for several years. Ecology's [2015 PCB Chemical Action Plan \(CAP\)](#) recommended we develop and promote best management practices (BMPs) to control PCBs in building materials to reduce exposure to people and prevent PCBs entering stormwater. PCBs in building materials can contaminate stormwater runoff or enter the MS4 through precipitation and pressure washing of buildings, as well as construction debris during demolition or redevelopment – activities that are regulated under the Municipal Stormwater Permits to require stormwater management BMPs.

PCBs were produced for commercial uses from about 1929 until the 1976 Toxic Substances Control Act banned the chemicals for most uses in 1979 and restricted PCB concentrations in products to low levels. PCBs were used mostly in heat transfer fluids in electrical transformers and capacitors, but also as plasticizers, wax and pesticide extenders, and lubricants. PCBs were added to building caulk at high levels - up to about 30% by volume - to enhance the flexibility and longevity of seals. Buildings and structures built or renovated between 1929 and 1979 and particularly the highest usage period of 1950 to 1979, may contain PCBs, mainly in⁶⁵:

- Door and window caulking.
- Paint (primarily exterior paint).
- Galbestos roofing and siding.
- Fluorescent light ballasts.
- Various forms of joint material and sealants.

The 2015 PCB Chemical Action Plan (Ecology Publication No 15-07-002) describes several studies on building materials used during the 1950-1980 timeframe confirming the PCB containing materials in use in Washington state communities. These are known sources of PCBs; we are proposing stormwater BMPs to prevent and minimize PCB containing building materials from entering the MS4.

C. PCBs and MS4s

In 2021, US EPA developed PCBs in Building Materials fact sheet to provide guidance for handling PCB containing materials. Ecology also developed its own guidance, aligned with EPA's guidance.

The relevant available guidance, as well as Ecology's priority to address PCBs in the environment, provide opportunity for the Permits to better address activities to avoid or reduce PCBs from entering and discharging from MS4s.

We propose to update several sections of the Stormwater Management Program (SWMP) to better address stormwater management activities for existing building materials with PCBs in the following ways for city, county, and Secondary Permittees:

Education and Outreach – For the target audiences of property owners/managers (new), engineers, contractors, developers, and land use planners, add a subject related to Source Control BMPs to reduce pollution to stormwater, including PCBs. This subject area for general awareness education to this particular audience will promote the proper handling of building materials during activities that could transport PCBs into stormwater or the MS4.

Illicit Discharge Detection and Elimination (IDDE) – Addresses the conditionally allowable discharge of external building washdown of buildings built during the time period most likely to contain PCB containing materials (i.e., buildings constructed between 1950-1980).

Operation and Maintenance – Develop policies, procedures, and practices for:

External building washdown of municipally owned buildings constructed during the time period most likely to contain PCB containing materials (i.e., buildings constructed between 1950-1980).

Source control BMPs for building materials during demolition and renovations of municipally owned buildings.

In association with this proposed update and in support of Ecology's guidance on PCBs in building materials, updates are proposed to several BMPs in the Stormwater Management Manuals – specifically the following BMPs:

S424 BMPs for roof/building drains

S431 BMPs for washing buildings

S438 BMPs for construction demolition

S451 BMPs for building repair/remodeling

8.5.2. Requirements Applying to All S5 Components (S5.A)

Special condition S5.A of each Permit establishes the requirements for the cities and counties named in S1, as well as New Permittees as named in the final Permits, to implement the core components of a stormwater management program (SWMP).

The stormwater management components in S5 form the core requirements of the SWMP. The minimum requirements for each component are established in S5. This section of the Permits provides a complete written record of the local programs, planning documents, and ordinances or other regulatory documents that the Permittees will implement to meet these requirements.

No significant changes proposed.

8.5.3. New Permittee Requirements (Phase II only)

Ecology proposes language in this section for New Permittees as defined in (S1.D.1.b of the PH II Permits) to identify the requirements and implementation schedules they must meet during the Permit term. They must fully meet all the applicable requirements of S5, but for the requirements with footnotes, they must meet the requirements in accordance with the modified activity or implementation schedule. This will result in full implementation of the S5 requirements over the Permit term.

Ecology proposes to require an implementation schedule for New Permittees similar to the schedule met by continuing Permittees as they built their programs during the current (2019) permit term.

The proposed language in this section referring to alternate schedules established as a condition of Permit coverage is intended to apply to New Permittees that may begin coverage after the issuance date of the Permit. This could occur, for example, as a result of petition.

No significant changes proposed.

8.5.4. Written Documentation of the SWMP (Phase I: S.5.A.1; PH II: S5.A.2; EWA Phase II: S5.A.2)

Each Permittee must submit written documentation of their SWMP. The purpose of the SWMP is to provide a description of the activities and actions that the Permittee plans for the upcoming calendar year. Ecology requires Permittees to update their SWMP annually and to submit it with each Annual Report. In the EWA Permit, several existing sections were reordered to be more consistent with the Phase II Permit.

No significant changes proposed.

8.5.5. Program Tracking (Phase I: S.5.A.2-3; WWA Phase II: S5.A.3; EWA Phase II: S5.A.3)

Each Permittee is required to track the cost of development and implementation of the SWMP. The anticipated cost and resources available to implement the SWMP do not serve as the basis for deciding whether individual SWMPs meet the MEP standard for these Permits. Annual cost tracking and reporting is proposed. Additional Annual Report questions are included to gather SWMP implementation costs this permit cycle. This reporting will help the Ecology understand the resources that are dedicated to compliance with this permit, and to implementation and enforcement of the SWMP, and track how these changes over time. 40 CFR 122.26(d)(1)(vi)

The requirement to track inspections, official enforcement actions and public education activities is based on EPA regulations in 40 CFR 122.42(c). Ecology proposes to retain language in this section to remind Permittees of this obligation.

No significant changes proposed.

8.5.6. Ongoing Implementation (Phase I: S5.B; WWA Phase II: S5.A.4; EWA Phase II: S5.A.4)

Permit language in this section calls for continued implementation of existing programs as Permittees phase in the requirements in their respective Permit, until proposed revisions are put into effect. Ecology includes requirements to retain regulatory mechanisms in local codes, including the illicit discharge prohibitions that cities and counties adopted under the current permit requirements. This language also requires New Permittees to retain existing programs and standards as they phase in the Permit requirements.

No significant changes proposed.

8.5.7. Coordination (Phase I: S.5.C.3; WWA Phase II: S5.A.5, EWA S5.A.5)

This requirement calls for establishment of coordination mechanisms both externally and internally to aid in the implementation of the SWMP.

External coordination is required, where needed, when watershed, interconnected systems, or waterbodies are shared. Failure to effectively coordinate is not a permit violation provided the other entities, whose actions the Permittee has no or limited control over, refuses to cooperate. This recognizes the difficulty of defining shared water bodies and understands that such coordination may occur at a variety of scales appropriate to the activities being coordinated. Permittees in most parts of Washington worked together in a variety of formal and informal coordination groups during the current (2019) Permit term.

No significant changes proposed.

8.5.8. Purpose of the SWMP (Phase I S5.B; WWA PH II S5.B; EWA S5.A.6)

This section is consistent with state and federal law and special condition S4 in requiring that the SWMP be designed to reduce the discharge of pollutants to the maximum extent practicable (MEP) and meet state AKART requirements.

No significant changes proposed.

8.5.9. Program Components. (Phase I: S5.C; WWA Phase II S5.C; EWA Phase II: S5.B)

This section of the Permits defines the core components of the stormwater management program for cities and counties for the term of the Permits. Each component includes a description of requirements and minimum performance measures. Each component also includes administrative and legal elements that must be in place to ensure program implementation, as well as requirements which should directly affect reduction in pollutants and impacts.

No significant changes.

8.5.10. Legal Authority. Phase I Only (S5.C.1)

This section is directly from EPA regulations (40 CFR 122.26). No significant changes proposed.

8.5.11. Stormwater Planning. Western WA Only. (Phase I S5.C.6; WWA Phase II: S5.C.1.)

This section contains requirements that apply a more holistic view to municipal stormwater management.

The 2008 Pollution Control Hearings Board (PCHB) Phase I ruling acknowledged the need for a watershed-scale approach to stormwater management based on the testimony of stormwater experts on all sides of the appeal. Scientists and policymakers recognize that it is not possible to maintain water quality and aquatic habitat in lowland streams in Washington State without considering land use and how the landscape is developed. This must occur at a scale that is broader than individual site and subdivision projects.

The PCHB directed Ecology to require the “permittees to identify, prior to the next permit cycle or renewal, areas for potential basin or watershed planning that can incorporate development strategies as a water quality management tool to protect aquatic resources.”^{66,67} This proposal continues the effort to meet the PCHB’s direction.

D. Background and Need

Urbanization of stream basins in western Washington has almost without exception been accompanied by a significant degradation or loss of the stream-related beneficial uses; in particular, the anadromous fish resources. There are multiple causes for the loss and those include: degradation of chemical and physical water quality; high flow-related stream channel alterations; loss of base flows; significant alteration of hydrologic patterns; and loss of critical riparian area functions.

Various forms of basin planning took place in the past. Those planning efforts traditionally suggested managing urban stormwater from planned new development and redevelopment by using the latest practices recommended by Ecology. Most of those practices are of limited effectiveness because they are applied at the end-of-pipe and/or only partially address the water quality and hydrologic changes of new development. They cannot address the full range of impacts caused by land development. Because the controls recommended by Ecology did not fully address the water quality, nor hydrologic impacts caused by urbanization, those plans have fallen short of protecting the aquatic resources.

Further, addressing stormwater impacts from new development and redevelopment at the site and subdivision scale will not adequately address legacy impacts from previous development patterns and practices, nor will it serve to protect areas providing ecological services for stormwater management. It is clear that we cannot protect the state's waters without also addressing degradation caused by stormwater discharges from existing developed sites. For that reason, stormwater programs must include planning and developing policies that address receiving water needs, including development of policy and regulations, and retrofit provisions.

A broader view of planning and implementation is needed in order to support and further habitat restoration needs. Policies that promote compact development, with a smaller footprint, reduced impervious surfaces, natural areas within the urban core, and improved water detention can help local communities meet the Growth Management Act's goals of accommodating growth while protecting the environment. Moreover, research indicates that most stream restoration projects that actively stabilize eroding channels should not be implemented until after hydrologic retrofits have been completed that restore the hydrologic regime, not concurrently with the implementation of the retrofits.⁶⁸

Finally, as mentioned above, the PCHB directed Ecology to use Permit requirements to include watershed-scale planning as a water quality management tool to meet MEP and AKART.⁶⁹

This proposed Phase I and WWA Phase II Permit section maintains three planning elements that address long-term and short-term stormwater management needs.

The first element, coordination with long-range plan updates, works toward a better understanding of local long-range planning processes and how policies, strategies, codes, and other measures do, or do not, address probable impacts of increased future stormwater discharges on receiving water health. Coordination of long-range plan updates includes additional stormwater management activities needed to meet the goals of protecting and restoring beneficial and designated uses. This section has

been revised to only include one reporting period, and the associated Annual Report questions are proposed to be revised, see Appendix 3.

The second element, low impact development code-related requirements, maintains the requirement that local development-related codes or enforceable standards require LID in order to make it the preferred and commonly used approach. This element also includes a provision for New Permittees to follow.

Ecology is proposing adding language to the permits to better address the ecosystem and stormwater management services of tree canopy. This proposal is based, in part, on the Stormwater Action Monitoring (SAM) Status and Trends, May 2018 Study of Puget Lowland Ecoregion Streams report:

The lack of watershed and riparian canopy cover was found to be an important stressor to B-IBI at the regional scale. This suggests that canopy cover protection and recovery (reducing impervious surface) could lead to substantial improvements in B-IBI scores. The highest attributable risk of poor B-IBI condition was determined to be watershed canopy cover (59%) followed by riparian canopy cover (34%) and watershed percent urban development (29%). As an example, the results suggest that as a best-case scenario a 34 percent reduction in the extent of stream reaches classified in poor B-IBI condition would result if poor riparian conditions were substantially improved.

A review of the Annual Report responses to the Coordination of Long-Range Plans also showed many jurisdictions considering tree canopy benefits. Tree canopy is used as a tool to address multiple issues for its ecosystem benefits for climate resilience, water resources, addressing environmental justice issues in the city or county, for air quality, shade, improved parks. Urban forestry is a significant focus of many jurisdictions. Tree canopy is critical to receiving water health and is a basic Low Impact Development (LID) Principle applied on a site-scale or landscape scale. The Permits already address LID Principles and LID BMPs for new and redevelopment – which includes local codes making LID the preferred and commonly used approach to development. Tree retention on the site-scale basis is addressed in local code as well as through tree credits – acknowledging the ecosystem services of trees and in particular, the interception of rain, transpiration, and evapotranspiration of trees to reduce stormwater runoff from a site.

Tree canopy is a tool used in eastern Washington jurisdictions, for a variety of reasons as well, for shade, environmental justice issues, and climate resilience to name a few. Many Permittees have their own tree canopy programs, and some participate in Tree City USA programs.

Ecology proposes new requirements for permittees to establish tree canopy policies and goals on a landscape scale as another stormwater management tool to control stormwater discharges to the maximum extent practicable and improve receiving water quality. This proposal is revised from the preliminary draft based on informal comments and is intended to be flexible to adapt to local conditions, needs, and perspectives. The proposed language is careful not to require tree canopy targets as they are difficult to specify generally, and especially with the different climate and geographies on each side of the Cascades. Ecology expects Permittees in eastern Washington to have different goals and policies than Permittees in western Washington, and even Permittees on the same side of the state with differences in perspectives, land uses, etc. will address this requirement differently so that it is appropriate for the local jurisdiction.

The proposed permit language is proposed for all three Permits. For the Eastern Washington Phase II Permit, Ecology is proposing to add the tree canopy provision in Condition S8 Monitoring and Assessment, since the eastern Permit does not have a Stormwater Planning section.

The third element, stormwater management action planning (SMAP), is an ongoing program for the 2024 Permits. It applies slightly differently for Phase I and WWA Phase II Permittees (this section is not proposed for the eastern Permit). For Permittees that conducted an SMAP in the 2019 Permits, not all initial SMAP steps (receiving water assessment, prioritization) are called out in permit language since this was conducted in 2019 permit term. This language has been moved to a new Appendix for the Permittee that was new in 2019 and therefore exempt from the requirements at that time but is required to follow the process in their second permit term.

Under the 2019 Phase II Permit, the SMAP element began with a receiving water assessment – to ensure that Permittees compile and review existing data and information on their receiving waters and contributing area conditions, so that they can identify and develop a plan to fill any significant gaps in knowledge. Permittees then developed a receiving water prioritization method and process to rank high priority areas where stormwater retrofits and other management actions would provide a water quality benefit to receiving waters. Permittees used the prioritized ranking as the basis for creating a plan for one priority area that takes into account tailored stormwater management strategies, including identification of the potential need for stormwater treatment or flow control BMPs to address existing or planned development. SMAPs were required to be submitted by March 2023.

Instead of the receiving water prioritization method and process that Phase II Permittees use, Phase I Permittees have a requirement in (S5.C.7) Structural Stormwater Controls (proposed to be called Stormwater Management for Existing Development (SMED) in the 2024 Permit), which requires Permittees to plan structural stormwater control projects based on a locally developed program that includes a process to prioritize and implement projects.

Additionally, the third element applies to Phase I Counties which asks to explain how the watershed-scale stormwater plans (developed in the 2013-2018 permit cycle) informs the prioritization or selection of projects (or both). The requirement helps to refine the watershed-scale plans to highlight implementation actions for a catchment within, by providing a submittal that explains what actions, if any, resulting from the watershed-scale stormwater plans will move forward as short-term or long-term projects and the anticipated implementation schedule.

Overall, the proposal maintains the intent to drive a process that incorporates stormwater policies and infrastructure as a need that must be accommodated early in land use planning, capital facilities planning, and regulations.

The proposed language builds on the 2019 Permit requirements by continuing to require Permittees to develop a SMAP for a new priority catchment or to continue to develop new actions for an existing SMAP. SMAPs are integral to strategic stormwater planning and can be used to meet the proposed new program component for WWA Phase II Permit: Stormwater Management for Existing Development. In the WWA Phase II Permit, New Permittee requirements for SMAP are moved to a new Appendix. This helps to streamline the permit section but details the steps required to develop a first SMAP. Continuing Permittees can refer to this section as needed. The SMAP requirements continue to rely on the original SMAP guidance developed for the 2019 Permit the Stormwater management Action Planning Guidance (Ecology Publication number 19-10-010, July 2019).

E. Purpose of proposed Permit requirements

1. Maintain or develop an interdisciplinary team(s) that can support and coordinate the elements of the requirement.
2. To gain an understanding of how Permittees are currently addressing stormwater needs and receiving water health through various types of comprehensive/long-range planning being conducted at the local level.
3. To continue to make LID the preferred and commonly used approach.
4. Adopt and implement goals and policies for tree canopy.
5. For Phase I Counties, understand how the watershed-scale stormwater plans are informing and influencing planned stormwater management actions.
6. For WWA Phase II Permittees, to prioritize and plan municipal stormwater retrofits and enhanced SWMP implementation to address impacts from existing or planned development on priority receiving waters.

8.5.12. Internal Coordination

Continue to convene an interdisciplinary team to conduct and coordinate the Stormwater Planning program effort. Team make-up should include representatives from the jurisdiction's stormwater program, long-term planning, transportation, parks and recreation, and scientific and technical experts. Permittees determine the composition of their interdisciplinary teams and may rely on already established teams. Ecology intends for Permittees to meet this requirement by utilizing staff employed by the municipality that have job duties and influence over asset planning and policy, as well as other relevant backgrounds. If a particular discipline is not available for a Permittee's team, that is not a permit violation. The Permittee may use judgment to determine which disciplines or backgrounds are relevant and needed for the team's work, and whether their team should be augmented by consultants or other contracted individuals with helpful expertise.

For Phase II, this team could be used to coordinate the planning effort across various departments, compile existing information, refine initial prioritization results, prepare plan, and evaluate the process and implementation of the plan as an ongoing task (if applicable).

8.5.13. Coordination with long-range plan updates.

This section requires the analysis and reporting of how stormwater infrastructure and receiving water health needs are informing the planning update processes and influencing policies and implementation strategies during existing planning update or development processes. This section does not intend to create a parallel planning process to ongoing long-range planning or Comprehensive Plan updates – rather, the reporting will describe how those processes take into account, consider, and evaluate information related to receiving water health and stormwater infrastructure needs while determining how to accommodate projected growth, or provide adequate services to the existing population served by the MS4.

Permittees will develop a submittal that describes how, or if, stormwater-related water quality and watershed protection are being addressed in revisions to your Comprehensive Plan (or equivalent process) as well as how water quality and watershed protection are being addressed in revisions to other locally-initiated, state-mandated long-range land use, transportation plans, or other plans used to prepare and accommodate population needs.

As described above, stormwater management needs must be taken into consideration early in the planning process, including while determining land capacity for accommodating growth. Ecology intends to learn how Permittees are addressing this need in existing planning updates.

This section has been revised to only include one reporting period, and the associated Annual Report questions are proposed to be revised.

8.5.14. Low impact development code-related requirements

Maintaining the intent of the 2013 Permits, this requires that as jurisdiction's development-related regulations and standards are being developed or updated, LID must continue to be required in order to maintain and, where needed, make continued progress toward making LID the preferred and commonly used approach.

LID requirements for Western Washington Permittees stem from appeals of the 2007 Permit. The Pollution Controls Hearing Board (PCHB) issued a ruling on August 7, 2008, for the Phase I Municipal Stormwater Permit (Phase I permit) for local governments covered under the Phase I permit, including King, Snohomish, Pierce, and Clark counties and the cities of Seattle and Tacoma. The *Findings of Fact, Conclusions of Law, and Order* for the Phase I permit stated that Ecology must “.....require non-structural preventive actions and source reduction approaches including Low Impact Development techniques (LID), to minimize the creation of impervious surfaces, and measures to minimize the disturbance of soils and vegetation where feasible...”

On February 3, 2009, the PCHB issued a *Findings of Fact, Conclusions of Law, and Order* for the WWA Phase II Permit that recognized the wide range of capacity and expertise among Phase II jurisdictions for implementing low impact development requirements.

LID design is not limited to specific stormwater best management practices (BMPs) such as bioretention, permeable pavement, and vegetated roofs. LID also requires an approach to site assessment and project design to conserve vegetation, minimize soil disturbance, and minimize and disconnect impervious surfaces. In order to clarify that implementation of LID includes these elements, Ecology distinguishes between *LID BMPs* and *LID principles* in Permit language, as follows:

- **LID Best Management Practices:** Distributed stormwater management practices, integrated into a project design, that emphasize pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration. LID BMPs include, but are not limited to, bioretention/rain gardens, permeable pavements, roof downspout controls, dispersion, soil quality and depth, vegetated roofs, minimum excavation foundations, and water re-use.
- **LID principles:** Land use management strategies that emphasize conservation, use of on-site natural features, and site planning to minimize impervious surfaces, soil disturbance, native vegetation loss, and stormwater runoff.

By including both terms in the LID requirement, Ecology intends that Permittees will amend or develop stormwater and land use codes, rules, standards, and other enforceable documents as necessary to apply both LID BMPs and LID principles. For continuing Permittees, this applies to the development of new codes/documents, or whenever existing relevant codes/documents are revised. This is not proposed or intended as a repeat of the 2007-2013 Permit requirements, but rather a continuation, so as new codes are being developed or revised, they should not create barriers to LID implementation. In addition, as new codes and administrative practices are being implemented as a result of the updated local programs, any newly found barriers should be reported and corrected.

New Permittees are required to follow the process as was required under the 2013 Permits. See the November 4, 2011, Fact Sheet for discussion on this requirement¹³.

The requirements entail annually reporting a summary of:

1. Any newly identified administrative or regulatory barriers to implementation of LID principles or LID BMPs and measures to address the barriers since local codes were updated to make LID the preferred and commonly used approach.

¹³ <https://ecology.wa.gov/Asset-Collections/Doc-Assets/Water-quality/Water-Quality-Permits/MS4-permits/WWA-PhII/WWAPhaseIIFactSheetFINAL>

2. Any mechanisms adopted to encourage or require implementation of LID principles or LID BMPs. This may include incentive programs, adopted code, or similar efforts.

New Permittees will submit a list of the participants (job title, brief job description, and department represented), the codes, rules, standards, and other enforceable documents reviewed, and the revisions made to those documents which incorporate and require LID principles and LID BMPs. The summary is to include existing requirements for LID principles and LID BMPs in development-related codes and organized by:

- Measures to minimize impervious surfaces.
- Measures to minimize loss of native vegetation.
- Other measures to minimize stormwater runoff.

New Permittees have an additional year after the requirements to adopt of Appendix 1 to complete the broader suite of code review. Ecology has developed an optional reporting template that may be used to help meet this requirement. It is found in municipal Permittee guidance on Ecology's website.

Ecology funded an update to the Western Washington Hydrologic Model to address LID BMPs. Ecology continues to fund guidance and training on LID BMPs statewide.

This section is where the proposed requirement to adopt and implement tree canopy goals and policies is added for western Washington Permits, in eastern Permit, the same language is proposed in S8.

A. Stormwater Management Action Planning

Phase I Permittees have a requirement in Stormwater Management for Existing Development (formerly Structural Stormwater Controls, (S5.C.7.b.ii (a)) which requires Permittees to develop a prioritization process and criteria to select projects to address impacts caused by the MS4 from areas of existing development. (See discussion above regarding Phase I County's proposed requirement.) This type of planning requirement is continuing for WWA Phase II Permit. The following describes how the requirement is structured for Phase II Permittees. See also guidance document, Stormwater Management Action Planning Guidance (Ecology Publication number 19-10-010, July 2019).⁷⁰

Receiving water inventory and assessment

Permittees documented and assessed existing information related to local receiving waters and contributing area conditions to identify receiving waters that will benefit from stormwater management planning. The Permit enables Permittees to complete this element individually or as part of a regional/interlocal effort. Permittees are not

expected to repeat this effort unless new information is available that the Permittee wants to include.

Permittees prepared an inventory of local receiving waters to which the MS4 discharges and documented information about the contributing watershed areas. The inventory included currently available basic water quality assessment information.

Where data is lacking, the Permittee should develop a plan and protocol to improve the state of knowledge.

Prioritization of basins for tailored management actions

Informed by the inventory and assessment of receiving waters, Permittees conducted a prioritization process to identify the contributing watershed areas where implementation of stormwater retrofit projects (i.e., new or upgraded stormwater facilities to reduce pollutant loading and address hydrologic impacts from existing and/or new development in the basin), and/or other tailored management strategies and actions will provide the greatest benefit to the receiving waters. This process should include a feedback loop designed to adaptively manage the process and outcomes based on lessons learned. Continuing Permittees are not required to submit these same submittals during the 2024 permit term.

For Permittees that were new in the 2019 Permit and exempt from the SMAP requirements are now required to conduct the SMAP process and include the following:

- The Annual Report submittal will describe the well-documented approach the Permittee used to identify high priority areas for retrofits and other tailored management actions based on (1) conditions in the receiving waters, and (2) an assessment or understanding of influence of stormwater management strategies and actions to reduce impacts to the receiving waters.
- The Annual Report submittal will describe how the prioritization effort identified and ranked watershed sub-basins or catchment areas where the receiving waters will receive a benefit from implementation of stormwater facility retrofits. The submittal also describes how the prioritization process was used to better inform the implementation of stormwater management actions related to Permit sections within S5.C: IDDE field screening, prioritizations of Source Control inspections, O&M inspections or enhanced maintenance, or Public Education and Outreach behavior change programs.

- The Annual Report submittal will document the process and schedule to provide future assessment and feedback to improve the planning and implementation of the proposed projects and actions.

Existing or previous local watershed management planning process(es) as source(s) of information can be referenced as the basis or rationale for the prioritization.

Stormwater Management Action Plan

Permittees will develop a Stormwater Management Action Plan (SMAP) for at least one high priority area, or additional actions for an existing SMAP, that identifies tailored stormwater management actions, including: stormwater facility retrofits (new facilities or upgrades to existing facilities), a proposed implementation schedule, and budget sources. The plan must identify (1) short-term actions (i.e., actions to be accomplished within six years), (2) long-term actions (i.e., actions to be accomplished within seven to 20 years), and (3) a process to adaptively manage the plan. The SMAP 6-year planning period is based upon GMA/Comprehensive Plan-related capital facilities planning (CFP) requirements, which also aligns with transportation grants which typically require a 6-year plan. The SMAP 20-year planning period is based on the Washington State Department of Commerce recommendation that CFPs also cover a 20-year planning horizon because capital project financing often requires multi-year commitments of financial resources. This is a continuation of the 2019 SMAP requirements. Continued strategic planning is needed to develop projects and actions to improve receiving water conditions. Language is intended to be flexible to the range of SMAP development and planning that has been conducted. Permit language is updated to include planning for projects that address transportation-related runoff, such as projects that address tire wear runoff. This highlights and emphasizes those project types in future planning.

Like with the 2019 Permits, the Annual Report submittal will describe the high priority basin area, the proposed short-term and long-term actions, a funding mechanism, and a description of the adaptive management process. The actions proposed should go beyond existing site and subdivision scale stormwater management requirements. Permittees may reference existing plans, or modifications to those plans, that address these requirements.

8.5.15. Public Education and Outreach

(Phase I: S5.C.11; WWA Phase II: S5.C.2; EWA Phase II: S5.B.1)

A. Proposed changes to all three Permits:

- Many of the proposed changes are based on feedback and comments received on how to improve the existing programs and permit language.

- Each of the Permits' requirements related to this section are largely being maintained as an ongoing program, with new proposed dates to meet requirements for the behavior change program in the Western Permits or evaluating a message in the Eastern Permit.
- Revised "target" audience to "priority" audience based on comments received.
- Revisions to clarify priority audiences and subject areas.
- Addition of university/college or trade students and property owners/managers as a priority audience and a new topic related to providing Source control BMPs for building materials to reduce pollution to stormwater, including but not limited to stormwater pollution from PCB-containing materials. See discussion regarding PCBs in Section 8.5.1.
- Stewardship requirements were clarified and are proposed to be added to the EWA Permit. This provision requires Permittees to partner or promote (or both) stewardship opportunities to the community – these are typically community events that encourage the public to learn and interact with their watershed.

B. Proposed changes to Eastern Washington

The overall approach of the EWA Permit Education and Outreach Program is maintained as a continuing program. Other than the changes described above, no other significant changes are proposed. In order to determine whether a promoted message is reaching a priority audience, an evaluation of the program is proposed, and the results are to be used to direct the future efforts of the program.

C. Proposed changes to Western Washington

Based on comments received from STORM and others and that social marketing is now established as the approach to the behavior change program, the term Community Based Social Marketing (CBSM) was removed from permit language as an example of an effective social marketing campaign approach. Social marketing is still required and CBSM remains an example for Permittees to follow as guidance to meet this requirement.

Like the 2019 Permit requirements, the proposed updates provide the flexibility to conduct an evaluation of an existing program, which based on the last evaluation may be an interim program evaluation, or to forgo the evaluation if choosing a new behavior change campaign for the permit term. A common question raised about the permit deadlines is the date by which the strategy developed must begin to be implemented. This date does not necessarily mean when a new or refined program must roll out to the priority audience but may include the start of a survey or focus groups of the target audience or other early tasks that inform the behavior change program.

8.5.16. Public Involvement and Participation (Phase I: S5.C.4; WWA Phase II: S5.C.3; EWA Phase II: S5.B.2)

This section requires each Permittee to make the SWMP and Annual Report available electronically either on the local webpage or through Ecology's webpage by May 31 each year to ensure timely posting after the March 31 deadline for submittal to Ecology. Ecology believes this is a reasonable requirement given the common use of the internet for public information. Permittees should make other submittals related to the Municipal Stormwater General Permits available to the public upon request.

The intent is to create an environment where the public can have an active role in shaping the local stormwater program. Because Washington State has strong requirements for public participation in local government decision-making processes, a number of SWMP activities such as code revisions already require public involvement under other state and local laws.

The term overburdened communities was introduced in the 2019 permit language as an audience for public involvement. Permittees are required to create opportunities for overburdened communities to participate in the decision-making around the development, implementation, and update of the Permittee's SMAP and SWMP. The 2024 proposed requirements build on that by asking Permittees to document and report how they identify overburdened communities in their jurisdictions and how they are attempting to involve those communities in the public involvement opportunities. These proposed requirements provide more information about how Permittees involve overburdened communities. Permittees may use existing and available resources to identify overburdened communities such as the Washington State Health Disparities Map, EPA's EJ Screen, or a local analysis.^{71, 72} The Permit has also refined the definition for overburdened communities to align with Washington's Healthy Environment for All (HEAL) Act, see definitions section.

8.5.17. MS4 Mapping and Documentation (Phase I: S5.C.2; WWA Phase II: S5.C.4; EWA Phase II: S5.B.3.a)

Many of the changes are proposed to bring statewide consistency to the mapping requirements. The MS4 mapping requirements are in a separate section in Phase I and WWA Phase II, while in the eastern Permit, the mapping requirements are still found in IDDE section, but are discussed here.

As stated in previous permit cycles, Ecology proposes the minimum mapping standards in order to know the MS4 system and thus, to be responsive to spills and perform the IDDE and Operation and Maintenance (O&M) requirements (at a minimum).

Although the requirements are not explicit, Ecology expects that Permittees will also map structures such as catch basins and inlets to support their IDDE activities when they map tributary conveyances. This information would be particularly important for purposes of tracing illicit discharges and preventing harm from spills.

Ecology also expects Permittees to map the MS4 in greater detail in areas with land uses that involve storage, transfer, or use of materials where the risk of harm is greater because of factors such as the frequency of transfer or use, the potentially severe or irreversible environmental impacts associated with the illicit discharge or release of such materials, or the nature of the downstream resources at risk. Ecology intends for Permittees to apply local knowledge of land uses to map the MS4 more completely in these areas to meet the intent of the illicit discharge program.

A. *Proposed changes to all three Permits:*

- During the reissuance process, Ecology announced that we are considering adding an outfall reporting standard requirement to the Phase I, Western and Eastern Washington Phase II Municipal Stormwater Permits. We propose adding minimum attribute information to include the outfall information received in Ecology's Water Quality Atlas. Currently, all municipal stormwater outfalls are required to be mapped by Permittees and outfall size and material must be reported to Ecology; however, the location of the outfalls is not required to be reported to Ecology. The 2019 Phase II Permits required electronic mapping for the first time, so the 2024 Permit follows the path to receive this outfall data. We are proposing to require outfall locations to be reported to Ecology under the 2024 permits. To ensure that outfalls locations are reported in a consistent format, we are proposing a template to receive outfall location data and have several options for permittees to consider. Most feedback received on this proposal has been supportive or neutral and that Permittees could easily report outfall size and material along with the proposed location information. The proposed outfall reporting templates, which were shared as preliminary drafts too, will include size and material, and will be found with the Annual Reports. Ecology will be able to receive the following reporting template formats:
 - ESRI file geodatabase template
 - Shapefile template
 - ArcGIS Online
 - Excel template
 - Outfall reporting data proposed to be collected in the various format templates include:
 - Outfall id
 - Latitude/longitude (decimal degrees)
 - Horizontal datum, accuracy, collection method
 - Size/material
 - Some recommended data can also be received such as outfall elevation, accuracy and collection methods

- Ecology proposes Permittees develop a method to map and assess acreage of MS4 tributary basins to outfalls or discharge points that have stormwater treatment and flow control BMPs/facilities owned or operated by the Permittee. Permittees would then submit a map and breakdown of acres managed or unmanaged by stormwater treatment and flow control BMPs/facilities with the Annual Report. This may be an estimate and is a methodology that will refine over time. This requirement is proposed to gather additional information about the area of land that may be in need of additional stormwater controls. Ecology accepts that there may be additional analysis needed in the future permit cycles.
 - Since the eastern permit has not required the mapping of tributary conveyances, this requirement is added instead. This would bring additional statewide consistency to the stormwater permit required mapping. The requirement proposes to map tributary conveyances to all known outfalls and discharge points with a 24-inch nominal diameter or larger, or an equivalent cross-sectional area for non-pipe systems; including the mapping of the following features: Tributary conveyance type, material, and size where known, associated drainage areas, and land use. Tributary conveyance is a defined term and also proposed to be added to eastern Permit glossary.
- Building on the tree canopy benefits described in the Stormwater Planning section, the proposed language requires Permittees to begin mapping Permittee-owned or operated properties with tree canopy based on available, existing data. There are several sources of accurate and available data sources to document tree canopy which may be useful. This requirement begins to identify tree canopy on lands owned or operated by the Permittees and supports the proposed requirement to adopt tree canopy goals and policies for stormwater management (see discussion in stormwater planning for the western Permits and S8 sections for the Eastern Permit).

B. Proposed changes to western Permits

Requirements that were new in the 2019 Permits are moved to the ongoing mapping section. No additional significant changes.

C. Proposed changes to Phase I

Proposed requirements include continuing to map the tributary conveyances to outfalls (with a size of 24" or greater) in rural areas of the county not previously mapped in the 2019 permit cycle. The 2019 Permit requirements only required the mapping of these features for 50% of the area outside of the previously mapped urban/higher density rural sub-basins. This proposal continues to update the MS4 map to include these tributary conveyances not previously mapped. No additional significant changes.

8.5.18. Illicit Discharge Detection and Elimination (Phase I: S5.C.9; WWA Phase II: S5.C.5; EWA Phase II: S5.B.3)

Permittees used the illicit discharge detection and elimination (IDDE) program during the current Permit cycle to eliminate many pollution problems. This program is well-established ongoing program as it has been included with the original Permits.

A. Proposed changes to all three Permits

- Many of the existing requirements remain with updated due dates where needed.
- In allowable discharges – the list of non-stormwater discharges that do not need to be prohibited from the MS4 – Ecology proposes to add clarifying language to non-stormwater discharges from emergency firefighting activities.
- Regarding conditionally allowable discharges – non-stormwater discharges that need special conditions to discharge to the MS4 – a distinction is proposed to be made between routine external building washdown of building built between 1950 and 1980 to address building most likely to have PCB-containing building materials. See previous PCB discussion. This change is proposed for all Permittee types as an approach to preventing a known source of PCBs from entering the MS4. Buildings built outside of that timeframe may proceed as previous permit language allowed. Building built during that timeframe will need to be assessed for PCB-containing materials before external building washdown to the MS4 can proceed. Ecology's recent guidance on How to Find and Address PCBs in Building Materials (Ecology, 2022) will help property owners (and Permittees – see discussion under O&M) determine if their structures have PCB-containing materials and how to proceed. Building owners are responsible for following applicable laws related to PCBs, this proposed requirement intends that buildings with PCB-containing materials will not discharge building washdown to the MS4.
- The IDDE screening guidance Illicit Connection and Illicit Discharge Field Screening and Source Tracing Guidance Manual is updated to the most recent 2020 version and referenced in the proposed language. The 2020 update was a SAM project.
- The requirement to track total annual percentage of the MS4 screened is proposed to be removed as it was confusing for Permittees and did not yield useful or relevant information.
- Ecology proposes to maintain the IDDE reporting requirements to through an application in the Water Quality WebPortal - WQWebIDDE. Reporting requirements are found in the associated Appendix in each Permit.

Each Permittee may either use their own system or the form in WQWebIDDE for recording this data. The Annual Report submittal must include all of the information specified in the new IDDE reporting Appendix (appendix 7 for EWA, 13 for WWA Phase II, and 14 for Phase I). The schema is proposed to be updated with minor edits to better align with the WQWebIDDE forms.

B. Proposed changes to Eastern Washington

See MS4 mapping and documentation (above) for additional discussion on S5.B.3.a.

8.5.19. Controlling Runoff from New Development, Redevelopment and Construction Sites (Phase I: S5.C.5; WWA Phase II: S5.C.6; EWA Phase II: S5.B.4&5)

This program prevents and controls the impacts of runoff from new development, redevelopment, and construction activities. The Eastern Washington Permit maintains two sections: 1) construction site stormwater runoff control, and 2) post-construction stormwater management for new development and redevelopment. This is an established permit program that has been updated during each permit cycle to align with updates to control runoff more effectively from these activities. Specific project standards are described in Appendix 1 of each of the Permits. Proposed changes to both of those sections are discussed here.

A. Proposed changes to all three Permits

Ecology proposes to update the Stormwater Management Programs, and associated Appendix 1 to make the stormwater management standards for new development and redevelopment projects more protective of water quality. Municipal Stormwater Permits are required to meet the federal standard to reduce pollutants in stormwater discharges to the Maximum Extent Practicable (MEP), which is a flexible standard intended to acknowledge the complexity of managing a public stormwater system in an urban environment. Adapting over time also means adapting to new information about the impacts from development and road infrastructure to receiving waters. In light of new information on toxic tire wear pollutants such as 6PPD and 6PPD-Quinone, we are proposing to reduce project thresholds to increase the amount of urban lands receiving treatment for stormwater runoff. This will also provide benefits beyond treatment for toxic tire wear pollutants because stormwater BMPs often provide treatment or control for multiple pollutants at once.

Ecology reviewed the standards and requirements in Appendix 1 and is proposing significant changes to all three permits. The proposed changes will provide clarifications to ensure standards are implemented as intended and update the standards and thresholds to capture more projects that have potential to pollute waters of the state. Associated changes to Controlling Runoff from New Development, Redevelopment, and Construction Sites and Appendix 1 are proposed – see discussion in Appendix 1 Section of this document.

- Requirements for ongoing program implementation by continuing Permittees and footnotes for New Permittees (Phase II) indicating where some requirements are modified and establishing an implementation schedule.

The draft Permits require Permittees to continue to implement the ongoing programs established during the current (2019) Permit term. Permittees would be required to modify the program by the deadline proposed for adoption and implementation of the

draft revisions to Appendix 1. The implementation schedule Ecology proposes for New Permittees is similar to the timelines as the continuing Permittees, to start bringing all Permittees together with the same or similar dates.

The proposed language carries forward the timeframe provided for projects to start construction which were approved under previously adopted local standards. If construction is not started by the date specified in the Permits, then the currently adopted local standards must be applied to the proposed project. The Washington State Supreme Court upheld this Permit language in December of 2016.⁷³ Dates are added for applications submitted prior to the proposed adoption dates for the 2024 local program update which have not started construction, the proposed language follows the established timeframes as previous Permits.

- The Permits clarify that inspections of need to be conducted by qualified personnel, a defined term in the Permits.
- The provision that requires the local program make available, as applicable, links to the online applications forms for the Construction Stormwater General Permit, and Industrial Stormwater General Permit was updated to use more relevant language and include the links to the Underground Injection Control (UIC) registration program. This provision is new for the eastern Permit and is added as these applications are relevant for projects that are happening across the state, not just western Washington.

B. Proposed changes to Eastern Washington

- Ecology proposes to update the Eastern Washington Phase II Municipal Stormwater Permit (EWA Permit) Appendix 1, and associated Stormwater Management Programs to make the stormwater management standards for new development and redevelopment projects more protective of water quality. The current standards have not seen significant changes since the Permits were first issued in 2007.

Ecology proposes to update the thresholds that determine when stormwater BMPs apply to new development and redevelopment projects. We propose to remove the “Regulatory Threshold” definition in the glossary, which is the one-acre land disturbance threshold that applies to the Permit sections: Construction Site Stormwater Runoff Control (S5.B.4) and Post-Construction Stormwater Management for New Development and Redevelopment (S5.B.5), and the Minimum Technical Requirements found in Appendix 1 of the Permit. The Regulatory Threshold definition states:

Regulatory Threshold refers to the one-acre size, including the exception noted below, of new development and redevelopment projects that shall be regulated under this Permit. The threshold includes construction site activities and new development and redevelopment projects that result in a land disturbance of equal to or greater than one acre and construction activities and projects less than one

acre that are part of a larger common plan of development or sale. This threshold is a minimum requirement that may be exceeded by a local jurisdiction.

The one-acre threshold is the minimum standard set by the US EPA Phase II Municipal Stormwater Final Rule, which requires a Permittee to develop, implement, and enforce a program to reduce pollutants in stormwater runoff to their MS4 from construction and post-construction activities that result in a land disturbance of greater than or equal to one acre. The Eastern Washington Permit has had this threshold in place since Ecology first issued the Permits in 2007. Since that time, Permittees have developed and implemented programs that establish legal authority to conduct site plan review and inspection of proposed development projects, as well as ensure ongoing or long-term maintenance of stormwater BMPs required by the Permit.

Municipal Stormwater Permits are required to meet the federal standard of Maximum Extent Practicable (MEP), which is a flexible standard intended to acknowledge the complexity of managing a public stormwater system in an urban environment. It is also a standard intended to adapt over time and become more effective at addressing the impacts of stormwater runoff. Developed land changes the hydrology of not only a project site but watersheds overall, leading to higher stormwater runoff volumes and pollutant loads. Reducing the project thresholds to apply stormwater BMPs better captures urbanization as it is occurring than the 1-acre threshold.

Eastern Washington continues to experience population and housing unit growth, although increases are not consistent throughout all permitted areas. Climate change projections show more precipitation, less snowpack, and earlier snow melt events for EWA, and these additional stormwater control measures are anticipated to better address impacts to receiving waters from changing hydrologic patterns.

Adapting over time also means adapting to new information about the impacts from development and road infrastructure to receiving waters. In light of new information on pollutants such as 6PPD and 6PPD-Quinone, we are proposing to reduce project thresholds to gain more stormwater Runoff Treatment. At this time, we are not considering adding a retrofit requirement to the EWA Permit but will instead focus on reducing thresholds to encourage more stormwater BMPs as development is occurring.

Ecology is proposing these changes in order for the Permit to be more comprehensive in directing stormwater management for smaller projects as urbanization occurs and increasing Runoff Treatment for projects that are expected to generate tire wear (e.g., roadways and parking lots). Stormwater runoff impacts from urbanization are well-documented, and the proposed Appendix 1 thresholds

for the Core Elements are intended to address volume and quality of runoff from a site that adversely impacts receiving waters. The (existing) one-acre threshold requires an extensive amount of land to be disturbed prior to any stormwater requirements included in the Permit to apply. The proposed changes would provide additional oversight to local development to ensure that projects that trigger thresholds would apply stormwater BMPs to protect waters of the State.

The following list summarizes the significant changes proposed to the Controlling Runoff from New Development, Redevelopment and Construction Sites section of the Eastern Washington Permit:

1. Revise Section S5.B.4 and 5 Construction Site Stormwater Runoff Controls and Post-Construction to refer to Appendix 1 for thresholds instead of the “Regulatory Threshold”.
2. Revise Appendix 1. See additional discussion in Section on Appendices.
 - a. Add clarifications to flow charts to help describe when projects are required to be reviewed according to the provisions
 - b. Update New and Redevelopment Project Thresholds that describe when the Core Elements must be reviewed.
 - c. Modify the existing language for all the Core Elements to refer to the Project Thresholds Section
 - d. Update Core Elements 5 and 6 to include Core Element Thresholds
 - e. Clarify pavement and utility exemptions
 - f. New Core Element for Wetland Protections
3. Definition Changes
 - a. Establish a design storm standard for full infiltration
 - b. Delete definition for “Regulatory Threshold”
 - c. Add definitions to Appendix 1, including:
 - i. hard surface
 - ii. pollution generating hard surface (PGHS)
 - iii. pollution generation pervious surface (PGPS)
 - iv. effective impervious surface
 - d. Removed definitions from the Permit Glossary that were duplicative of the definitions added to Appendix 1 or not used in the permit. Some definitions that were previously in the Permit Glossary were updated for clarity, accuracy, and statewide consistency as they were added to Appendix 1.

S5.B.5: Post-construction proposed changes

See above, proposed changes apply in this section as well. Permittees must update programs to include the changes proposed in Appendix 1 and adopt the 2024 Stormwater Management Manual for Eastern Washington.

The regional technical manuals approved by Ecology must be updated to align with the updates to Appendix 1 and the 2024 SWMMEW. A process to conduct regional manual equivalency is provided in case the two existing regions with approved technical manuals, i.e., Yakima and Spokane Valley region, choose to make updates; alternatively, these areas could adopt the 2024 SWMMEW. The manual equivalency review and approval process is similar to the process followed by the Phase I Permit for manual equivalency, which requires a date by which to submit the local regional manual and associated ordinances for Ecology review and approval. Once Ecology determines equivalency, the local government will adopt the program and Ecology will conduct a permit modification to provide public process to the equivalency determination. A new appendix is added to the permit that will be a placeholder should Ecology make any manual equivalency determinations. Ecology recommends that those relying on an Ecology-approved manual begin to plan the needed updates to align with the 2024 SWMMEW. Between July 1, 2026, which is the deadline for submitting the amendment package, and the June 30, 2027, adoption deadline, Permittees would be responsible for the following:

- Responding to Ecology's comments. Based on previous experience, several iterations may be necessary before all comments are resolved. However, Ecology intends to bring structure to this review process so that it does not result in an extension beyond June 30, 2027.
- Finalizing documents that reflect the resolution of Ecology's comments.
- Conducting the public process for adoption.
- If necessary following public processes, making changes and coordinating such changes with Ecology to ensure approvability.
- Adoption by elected officials.
- Make program effective.
- Maintains the requirement that Permittees allow low impact development.

C. Proposed changes to Western Washington

A date is provided by which code updates related to Appendix 1 and site and subdivision scale requirements must be completed and applied to submitted Permits.

The significant revisions to Appendix 1 are provided in Appendix 10. Appendix 10 lists the minimum changes a Permittee must make to its local program adopted as required by the 2019 Permits. Phase I Permittees will be required to submit their

local programs for approval by Ecology. Following past processes, Phase II Permittees do not need to submit their local programs for approval. See additional discussion on the Phase I Permit local program review and approval process under ‘proposed changes to Phase I’, below.

See additional discussion at Appendix 1 for proposed changes to stormwater standards – minimum requirements, thresholds, and definitions for new development and redevelopment projects. These changes are proposed to provide clarity in implementing exemptions, reducing thresholds to manage runoff at a more refined scale to better address pollution sources like roads and commercial and industrial land uses at redevelopment opportunities.

D. Proposed changes to Phase I

Ecology proposes to require that Phase I Permittees submit draft revised codes, rules, standards, and other enforceable documents prepared to comply with S5.C.5.b to Ecology for review and approval.

Based on experience from the previous Permit cycles, Ecology proposes an Ecology review time period of 180 days to accommodate any iterative review and revision process with Permittees to finalize approved language. The proposed process for 2024 permit cycle follows the same approach as 2019. The specific required revisions and format are found in Appendix 10. Ecology expects a streamlined review process. Ecology proposes that the Permittee prepare the submittal for review in a specified format that directly calls out where the revisions were made. Ecology will limit its review to those required sections unless a Permittee requests review of other sections. A request for review must be complete, i.e., all needed information must be submitted with the request, or it will be rejected and not part of Ecology’s review and approval.

Once approved, Ecology will list the approved manuals and codes in Appendix 10 of a modified Phase I Permit. This list of approved manuals and codes can be used by Phase II Permittees who choose to adopt a Phase I program that Ecology deems to provide a functionally equal or similar level of protection to the minimum requirements, thresholds, and definitions in Appendix 1.

Between July 1, 2025, which is the deadline for submitting the amendment package, and the July 1, 2026, adoption deadline, Permittees would be responsible for the following:

- Responding to Ecology’s comments. Based on previous experience, several iterations may be necessary before all comments are resolved. However, Ecology intends to bring structure to this review process so that it does not result in an extension beyond July 1, 2026.

- Finalizing documents that reflect the resolution of Ecology’s comments.
- Conducting the public process for adoption.
- If necessary following public processes, making changes and coordinating such changes with Ecology to ensure approvability.
- Adoption by elected officials.
- Make program effective.

8.5.20. Coordinating with Updates of Stormwater Manuals, Guidance, and the Hydrology Model

Ecology is updating the stormwater manuals which provide guidance to local governments and developers on how to design projects to meet the requirements of these Permits. The draft manuals are available for public comment and are expected to be published in summer of 2024 with the Permits.

Stormwater Management Manual for Eastern Washington, and the Stormwater Management Manual for Western Washington, Department of Ecology (expected publication: July 2024).

See Appendix 1 section of this Fact Sheet for related information.

8.5.21. Operations and Maintenance Program (Phase I: S5.C.10; WWA Phase II: S5.C.9; EWA Phase II: S5.B.6)

The changes proposed for this section requires continuing implementation of the ongoing operation and maintenance (O&M) programs developed during the current (2019) Permit term. Proposed changes are for clarity and streamlining Permit language where appropriate. In Eastern Washington, this program still only applies to *municipal* O&M but is discussed here. In Western Washington Permit, O&M Program has been reorganized to align the Stormwater Management for Existing Development with the same permit section as Phase I Permit.

A. Proposed changes to all three Permits

- Maintenance Standards – In this section Ecology sets a deadline for cities and counties to update maintenance standards to be consistent with those in the SWMMWW/SWMMEW.

The proposed deadline is the same as the schedule for adoption of proposed site and subdivision requirements in the Controlling Runoff sections of the relative Permits.

- The Permits clarify that inspections of private and public stormwater facilities need to be inspected by qualified personnel, a defined term in the Permits.
- The eastern Permit includes a provision that allows stormwater facilities regulated by the Permittee to be inspected by a qualified third party. This provision is

proposed to be added to the western Permits and a definition for qualified third party is proposed. This provision can be included in the ordinances, should the Permittee choose, to allow a qualified third party to conduct inspections on private property in lieu of Permittee's staff or qualified personnel. This is proposed for western Permits to have statewide consistency.

- Each Permit requires an O&M Plan for policies, practices, and procedures for municipal operations and activities, the Permits propose updates to include source control BMPs to help address PCBs in municipally owned buildings through building cleaning, maintenance, and renovation or demolition for all Permittee types, including Secondaries. The 2024 Permits propose to update policies, practices, or procedures to include Source Control BMPs to minimize PCBs from entering the MS4Permittee-owned buildings built or renovated between 1950-1980 that are suspected or confirmed to have PCB-containing materials. The Permits also propose Permittees include procedures, policies, or practices to prevent stormwater impacts from building renovation or demolition activities in their O&M plan. See earlier discussion on PCBs.
- In all Permits, the established and ongoing requirement to inspect catch basins and inlets is on a rolling basis of every year (Phase I) or every two years (Phase II) with no specific due date specified in the permit. The permit requirement began in the 2013/2014 Permits with a deadline of August for a majority of Permittees, while others had a slightly shifted deadline. The 2024 Permits proposed to clarify that for whichever schedule you are currently on, the inspections shall be completed by the end of the year. For the Phase II Permits, a footnote is added for clarity regarding the December date.
- Proposed street sweeping requirements:

A street sweeping program is proposed for the first time for each of the Permits. Sweepers help to address multiple pollutants by collecting the solids found on the roadway surfaces and preventing them from washing into storm drains. Street sweeping is known to be an effective source control BMP for Total Suspended Solids, trash, total phosphorous, total nitrogen, total metals, and potentially tire wear particles (TWP), among others.^{74, 75} Street sweeping alone is not expected to address dissolved pollutants or pollutants that bind to ultra-fine particulate matter (e.g., silts, micro- or nano-plastics), but may be used as one of several overlapping stormwater management approaches to control pollutants in stormwater discharges.⁷⁶ As part of Ecology's efforts to better understand how to provide stormwater management of tire contaminants, including 6PPD and 6PPD-quinone we engaged partners and hired stormwater consultants to develop a technical report on the effectiveness of existing and known Best Management Practices (BMP).⁷⁷ This report finds that street sweeping may have a high potential to be an effective source control BMP for TWP. Ecology reviewed street sweeping permit requirements in other states, US EPA's MS4 Permit Improvement Guide, as well as a

number of street sweeping studies to inform potential permit requirements or enhancements/clarifications to the Stormwater Management Manuals (SWMMs).⁷⁸

Ecology proposed a street sweeping program early in the reissuance process and received comments at the Listening Sessions and on the preliminary draft proposal for street sweeping. We heard that many jurisdictions already sweep their roads most used by vehicles, as part of standard operations and maintenance programs. Others commented that they see benefit in developing a street sweeping program for stormwater management. Several Phase I Permittees rely on street sweeping to achieve Structural Stormwater Control requirements. The proposed street sweeping permit language is intended to be flexible and specific to high priority areas that will result in a water quality benefit to receiving waters. High priority areas are intended to include areas likely to accumulate pollutants of concern. Proposed language in the formal drafts are based on comments received on the preliminary draft language. Sweeping requirement describes:

- a timeline to develop the street sweeping program,
- aspects of the program to document and report,
- areas of high priority for street sweeping, these areas are identified in permit language and are intended to provide water quality benefits, such as high traffic roads, commercial and industrial areas, areas with significant tree canopy, areas with MS4 outfalls to receiving waters that support salmonids.
- proposed minimum frequency of four times a year for Phase I and three times a year (Phase II), with sweeping conducted at least once before the rainy season starts (Oct. 1) and within July-Sept months.
- In areas identified as high priority for the street sweeping program, we also propose a performance measure of sweeping 90% of those high priority areas each year. The proposal is not intended to reduce a permittee's existing overall street sweeping effort. If a permittee's street sweeping efforts provide equivalent or greater street sweeping frequency relative to the requirements, the permittee may continue to implement its existing program with documentation.

The proposed sweeping requirements intend to provide Permittees with adequate time to develop and acquire the necessary resources to implement a street sweeping program for stormwater management and water quality. There are multiple types of sweepers available, with varying levels of efficiency. Ecology expects Permittees to use what they have available, with the aim of being effective and efficient. Permittees are required to document specific sweeping activities to track the program for compliance and effectiveness.

The proposed frequency (three times a year for Phase II, four times a year for Phase I) was chosen after looking at other state programs, EPA guidance, and reported sweeping frequencies from Phase I Permittee's Annual Reports. For Phase I's that reported sweeping and reported frequency, most reported roads were swept at a higher frequency than four times a year.

Street sweeping is used across the state and nation in stormwater management programs to control for nutrients, transportation related pollutants, and industrial and commercial land uses, among other non-water quality reasons, such as aesthetics, air quality etc.⁷⁹ See earlier discussions (in Background section) regarding SAM and eastern WA effectiveness studies regarding sweeping. Street sweeping is a municipal stormwater BMP to reduce pollutants to the MEP and AKART standards.

Ecology has funded the purchase of sweepers and decant facilities, with the stormwater financial assistance program (SFAP) as well as studies regarding sweeping and decant facilities strategies and effectiveness with grant and loan fund sources, including grants of regional and statewide significance (GROSS).

We expect to continue to study and learn about the effectiveness of street sweeping for stormwater management and will continue to adapt this program in future permit cycles.

Updates are proposed for the associated guidance in Appendix 6 of the Permits (regarding street waste disposal) and for the SWMMs. Ecology also plans to update its website with resources to existing street sweeping programs for implementation guidance.

B. Proposed changes to Eastern Washington Phase II

- The reference to a "technical" stormwater manual is replaced with "equivalent" stormwater manual for clarity. This change is made throughout the Permit.
- Language is added to bring statewide consistency that allows Permittees to reduce the inspection frequency based on maintenance records of double the length of time of the proposed inspection frequency.
- Clarity on training program documentation is proposed.

8.5.22. Source Control Program for Existing Development. Western WA Only - (Phase I S5.C.8; WWA Phase II S5.C.8)

This provision is based upon EPA rules at 40 CFR 122.26(d)(2)(iv)(A) which call for a stormwater management program that includes, among other things, source control measures.

The Source Control Program for Existing Development is a proactive, preventative, inspection-based program that is focused on addressing pollution from existing land use and activities that have the potential to release pollutants to the MS4. This program

relies on local authority to inspect businesses and properties, and if necessary, requires operation or structural source control BMPs in order to prevent pollution from entering the MS4. This program started as Phase I Permit requirements only, but in 2019 the Source Control Program was added to the WWA Phase II Permit too. The Permit language updates are proposed to maintain the ongoing program.

A. *Proposed changes for Phase I and Western Washington Phase II*

Ecology removed redundant introductory language as most of this language was repeated in the performance measures, one provision regarding enforcement was moved to the performance measures as a better fit for the language.

The majority of the Phase II Permit changes are proposed to reflect an on-going program. New Permittees have interim program development due dates noted in the footnotes.

The language proposed clarifies that inspections shall be conducted by qualified personnel; a term defined by the Permits. This is consistent with proposed language changes in other permit sections.

Language is also added to clarify reporting of inspections should be organized by the business listing as shown in Appendix 8 – *Businesses and Activities that are potential sources of pollutants (the associated appendix for this permit component)*. This was language that was found in the Annual Report questions in the 2019 Permits, but comments received expressed expectations that this requirement should be in the main permit body, not only the Annual Report question.

No significant changes proposed.

8.5.23. *Stormwater Management for Existing Development (formerly Structural Stormwater Controls in Phase I, new to WWA Phase II Only - (S5.C.7)*

Phase I Permittees are required to implement a program for Stormwater Management for Existing Development (SMED), formerly known as Structural Stormwater Controls (SSC) as part of their Stormwater Management Program (SWMP). Ecology is proposing to rename this program to align it with the new WWA Phase II Permit program and provide a more descriptive name than SSC. The following provides a discussion of the proposed update to the Phase I Permit, followed by the WWA Phase II proposal.

Ecology aims this program toward retrofitting existing developed areas; and promotes planning and prioritization of these projects to reduce impacts to watershed hydrology and pollutant discharges from MS4s. Qualifying projects reduce or prevent negative water quality impacts from MS4s. This program also addresses regional stormwater facilities and stormwater impacts inadequately controlled by other Permit requirements.

A. *Phase I: Proposed Total Project Point Requirement*

Ecology proposed a defined level of effort for the SSC Program in the 2019 Permit. The level of effort is counted in SSC Program Points (proposed to be called SMED Program Points), which are tracked to standardize quantification of project benefits for a wide range of qualifying project types that are implemented to varying degrees of effectiveness across a multitude of landscapes, land uses, and scales. Ecology is proposing to increase the minimum SSC point requirement from 300 to 750 SMED Program Points.

The proposed SMED point requirements are based on Ecology's analysis of data from the 2019-2023 Phase I Appendix 12 submittals, input from the SSC Technical Advisory Committee and the SSC Policy Advisory Committee, early input and preliminary draft comments, and Ecology's best professional judgement. Assessment of the current level of effort results from existing SSC project reporting, projects that are reported but not counted, and feedback from the SSC PAC about projects that are not reported. Municipal Stormwater Permits are required to meet the federal standard of Maximum Extent Practicable (MEP), as well as state AKART requirements. Ecology has determined the proposed SMED point total requirement in the draft Phase I Permit is consistent with MEP and AKART.

Including a minimum SMED point requirement in the Phase I Permit means there needs to be a deadline for calculating total SMED Program Points and clarity on project status that qualifies for meeting the permit requirement.

- Ecology proposes December 31, 2027, as the deadline date for calculating points toward the required minimum. Projects may be reported from the 2019 project deadline of December 31, 2022. This allows for reporting by March 31, 2028, in advance of the Permit expiration date and equates to a tallying period of five years.
- Points to be achieved must be both goal-oriented and reasonable. The projects that qualify must be at defined project stage(s) or frequencies. Ecology proposes changing the defined level of effort for the 2024-2029 Permit cycle:
 - 450 design-stage points, and
 - 300 complete/maintenance-stage points.

This Permit cycle's minimum point requirements reflect the ongoing nature of the program. This is a continual process to plan, design, construct, or implement projects and the program recognizes this with level of effort for design-stage points as well as complete/maintenance-stage points. With the continuing program, there is a shift in the ratio of design to complete/maintenance stage project points from 3:1 to 3:2, reflecting that the SMED Program has been in place for a full permit cycle and some projects are moving from design to completion. This is also a reflection of Annual Reporting by Permittees, which have relied heavily on completion/maintenance stage projects. Complete/maintenance-stage incentive points may substitute for design-stage incentive points, however a minimum of complete/maintenance-stage incentive points must be

achieved by the date proposed. Sweeping and line cleaning totals, which sum annual activities, are to be reported individually each year.

- There is a new requirement to achieve a minimum of 200 of the 750 SMED Program Points with Project Types listed at S5.C.7a.i.(a)-(e), Project Types #1-5. These are stormwater facility retrofits and substantial maintenance projects. These points may be accrued by any combination of design-stage or complete/maintenance stage projects. This is to address stormwater retrofit needs with projects that can be planned and implemented with other capital projects, especially transportation projects, to address road runoff and have water quality improvement benefits to receiving waters. There is more evidence on performance indicators and performance limitations for Projects #1-4, compared to other project types, based on the *Structural Stormwater Controls Science Review and Synthesis Project White Paper* (2021). Including Project Type #5 recognizes the importance and need for substantial maintenance of stormwater retrofits to keep them functioning for runoff treatment and/or flow control.

As the *Structural Stormwater Controls Science Review and Synthesis Project White Paper* (2021), produced by the Structural Stormwater Control Technical Advisory Committee, concluded, it is very difficult to demonstrate a measurable improvement to receiving waters from individual retrofit project types included in Appendix 12 of the Permit. However, this study concluded that “cumulative effect of multiple projects should result in measurable improvements.” This study concluded that any project that benefits receiving waters is “making a difference” towards improving receiving water conditions. Ecology considers all of the project types in Appendix 12 to have some receiving water benefits.

Permittees’ reported funding of these projects from a mix of local, state, and federal funds. The minimum level of effort proposed therefore reflects some inclusion of these funding sources. The proposed Permit requirement to demonstrate a minimum level of effort will not make projects ineligible for state grant and loan funding. While water quality funding sources and levels have remained relatively stable over the years, grant and loan sources will remain competitive with no guarantee of securing funding for individual projects that may contribute to SMED project points.

Points are assigned differently to each qualifying project type. The scaling basis of point assignments is relative and is used solely for calculating compliance with the program point requirements of the SMED Program. Many point assignments are based on an “equivalent area” calculation. Ecology bases the equivalent area calculation on a scale that compares the amount of runoff treatment or hydrologic control achieved through the proposed project to the amount achieved if you designed the project to meet the new and redevelopment criteria for the area draining to the new BMP(s).

Equivalent area is then used for LID (MR #5), runoff treatment (MR #6), or flow control (MR #7) benefit standardization, reflected as a ratio. Because hydrologic and treatment benefits from stormwater facilities vary, Ecology has divided each into different levels of

project achievement. Each level is given a Program Point Factor, or multiplier that reflects a point system that is used to define the required SMED Program level of effort.

When creating and updating the point system, Ecology placed particular emphasis on:

- Incentivizing flow control, runoff treatment, Low Impact Development (LID) and substantial maintenance projects;
- Reducing negative water quality impacts from existing MS4 discharges, including tire wear pollutants, PFAS, and PCB's;
- Project effectiveness (as compared to minimum technical requirements for new/redevelopment projects);
- Addressing receiving water quality impairments (i.e., 303(d) listings); and
- Preventing future negative water quality impacts from the creation of MS4s (i.e., permanent protection from development) and MS4-related discharges.

The point system is intended to accommodate:

- Separate points for design and completion of a single project to provide credit for taking a project beyond the 60% design level.
- Diverse qualifying project types – For example, projects that involve habitat protection or reforestation are difficult to quantify in terms of a hydrologic and/or runoff treatment benefit. Thus, Ecology based the program points on the land area protected or restored.
- Different MS4 service area scales, landscapes, and land uses – Cities and counties have distinctly different landscapes in their MS4 service areas, and thus present different opportunities for SSC project types.

In general, the proposed SMED Program Point structure is intended to result in:

- More points for projects that improve water quality discharges to a water body with known water quality problems (such as 303(d) listing or contaminated sediment cleanup site).
- More points for projects that treat greater volumes of stormwater runoff (using a metric based on the 91% volume required for new and redevelopment projects) than projects with runoff treatment facilities that treat lesser volumes of water.
- More points for projects that provide greater “large storm” (MR #7) hydrologic benefit as compared to the standard flow control requirement.
- More points for projects that provide greater “small storm” (LID, MR # 5) hydrologic benefit as compared to the LID Performance Standard.
- More points for runoff treatment projects that quantifiably address targeted pollutants, such as dissolved metals, phosphorus, or other chemicals of concern.
- More points for expensive capital maintenance projects

- Modest points for property acquisition or other permanent protection of forest cover and riparian habitat.
- Fewer points for sweeping and line cleaning, which can provide variable or conditional outcomes and to bring these project types into proportion with other project types.
- Fewer points for projects that restore riparian buffer because this project type can be construed to, at least in part, mitigate for prior negative impacts from MS4 discharges, hydromodification, or land disturbing activities. Due to its likely direct improvement to surface water quality via shade and vegetative cover, riparian restoration is assigned slightly more points than forest restoration.

Projects that restore forest cover and reconnect floodplains receive the least number of points because these project types can be construed to, at least in part, mitigate for prior negative impacts from land disturbing activities.

B. Phase I: S5.C.7.a Project Types for Consideration

Ecology proposes the following changes for qualifying project types:

- Changing “Other actions to address stormwater runoff into or from the MS4 otherwise required in S5.C” to sweeping and line cleaning. These are the actions for which this project type was intended and has been used. These were further divided into two separate project types, as they have different program point factors. This separation was requested often in preliminary comments.
- Adding “Watershed Collaboration” as a project type. This allows projects that involve multiple jurisdictions to get points for the additional and unique planning and funding arrangements needed. This acknowledges that these projects may provide stormwater management benefits not possible when only working within municipal boundaries.
- The description for Sweeping Programs has been changed to acknowledge the new sweeping requirement. Only sweeping projects that are above and beyond the sweeping requirements in S5.C.10 qualify for SSC program points. The other requirements are similar, with one note about reporting. Sweeping area can be reported in curb miles or acres, since once curb mile for an 8.25 wide sweep equals an acre. Permittees are asked to specify the unit and the sweeper width if reporting in curb miles.
- These changes result in thirteen instead of eleven total project types.

C. Phase I: S5.C.7.b SWMP requirements for the SMED Program

Permittees must continue to describe the SMED program in the SWMP. The required written documentation of the Permittee’s is enhanced by a excel reporting table in Appendix 12 to be used with the Annual Report. This table is described in more

detail below in D. This was done to simplify reporting for Permittees and to get consistent reports that will simplify review and analysis by Ecology.

D. Phase I: S5.C.7.c SSC/SMED Reporting

There are changes in reporting requirements in Appendix 12, as outlined below. In general, goals of the reporting changes were to make all reporting elements individually listed, with less combining of project types and footnotes, and to clarify language. These changes are designed to make reporting easier and more uniform across projects and Permittees.

Project Reporting Template

Appendix 12, Table 1 has been developed into an Excel reporting template with some additional columns, equations to assist with calculating total SMED points, and example projects with their point calculations. The table is split, so design stage and complete/maintenance stage projects will be reported separately. Here are the additional columns in the reporting table and changes to language:

- **Reporting year** column has been added. This should be the year that the projects were done. If the projects are reported in 2025, the reporting year is 2024 when the projects were done.
- Project List and Project Name is changed to **Project Name**.
- Type has been changed to **Project Type** with additional clarification to separate the design stage and complete/maintenance stage projects, by the separate rows indicated in the template spreadsheet. Also, there are instructions for entering additional project type for watershed collaboration, if applicable.
- **Status** has a clarification on completion/maintenance stage referring to *completed and operational* construction projects, fully executed property purchases, implemented maintenance actions (that are associated with Project Types #6 and #11, and #12), and completed restoration projects.
- **Latitude/Longitude** column has simply been moved to a new location in the table.
- **Receiving Waterbody Name** column was separated out from Latitude/Longitude with instructions for unnamed water bodies and infiltrating stormwater.
- **Basin area** section was substantially expanded to discuss calculating area for different types of projects, including small projects under one acre and watershed collaboration projects. Information on how to measure and report basin area that were in a footnote are brought into the text here.
- LID Equivalent Area and SSC Program Points is changed to **LID Equivalent Area and LID Point Factor**. The paragraph on how multiple benefit projects is removed here because it is explained in Project Point Subtotal. This was removed in the runoff treatment and flow control sections below for the same reason.

- Runoff Treatment RT Equivalent Area and SSC Program Points is changed to **Runoff Treatment (RT) Equivalent Area and Runoff Treatment Point Factor**. This has clarifying information on Point factors, including examples to explain “Runoff in a Known Water Quality Problem Area.” It is clarified here that only one runoff treatment point factor can be chosen for each project. This is newly specified because the increase in all of the runoff treatment point factors would lead to very high points for one project potentially.
- Flow Control (FC) Equivalent Area and Program Points is changed to **Flow Control (FC) Equivalent Area Flow Control Point Factor** and has an added description of flow control problem areas.
- Other Program Points has been removed and columns added for the individual point factors that fell under this category previously: **Maintenance Point Factor, Sweeping Point Factor, and Line Cleaning Factor**.
- **Watershed Collaboration Milestone Points** has been added with a brief description of the ways that watershed collaboration projects receive points, with more detail in “How to Calculate Area and Points for Watershed Collaboration.” This column is for adding points for specific milestones being reached in project development – either completed agreement between participants or funding.
- **Project Point Subtotal** column has been added. This gives instructions on summing the points that result from individual benefits (point factors) related to different projects that are multiplied by the appropriate project area. The built in equations in the table simplify reporting for Permittees. Watershed Collaboration Milestone points are also added into the subtotal. In this section, the following language on how multiple benefit projects can sum the points for different benefits:

If the project provides benefits for standard flow control and/or runoff treatment, and/or LID, calculate equivalent areas and SSC Point Factors for each benefit. There can be different SMED Point Factors for each of the three (potentially different) equivalent areas. The point totals for LID, runoff treatment, and flow control benefits can be totaled. For example, a bioretention facility without a liner would get SMED points for LID, based on the LID performance standard, Runoff Treatment points for the amount that infiltrates through the bioretention soil media, and Flow Control points based on flow control (MR#7 benefit ratio) and equivalent area process.
- **Implements Approved Plan Point Factor** has been brought up from footnotes and added as a column with explanatory text. This used to be footnote 2 in the 2019 Permit. Stormwater Management Action Plans are added as a type of plan that projects could be implementing. Adaptive Management Plans (Appendix 13 and S4F) were removed as examples of watershed plans that would get this point factor, since these plans are required in a separate permit section.

- **Benefits Overburdened Community(ies) Point Factor.** This is also added as a separate column for the point factor to be noted if appropriate and was previously Footnote 3.
- **High Pollutant Generating Transportation Area Point Factor (HPGTA).** This is a new point factor that is added to incentivize projects that address road/transportation runoff that may be carrying tire wear and other pollutants to the stormwater system. These would include projects that manage roads owned or maintained by permittee that are defined as arterials, have ADT>30,000 vehicles, high use sites that have high traffic turnover or parking areas with over 300 total trip ends.
- **Watershed Collaboration Point Factor** is another column in Table 1. This has been added to address interest in working across municipal boundaries and creating an incentive to overcome some of the additional challenges involved in cross-jurisdictional work. This is a new point factor applied by all participants when a collaborative project is implemented. The area used to calculate points is either the area managed in Permittee jurisdiction, or a specific percentage of project managed as identified in the collaborative agreement. There is more detail in “How to Calculate Area and SMED Points for Watershed Collaboration.”
- Total SSC Program Points is changed to **Total SMED Project Points** and is added as a column. This is designed to help the Permittee to see their total points; the spreadsheet will automatically total the points by multiplying and/or adding point factors appropriately. A description of how multiple point factors are applied is here. The idea of “Project Wide Point Factors”, is introduced, including implementing an approved plan, benefiting overburdened communities, which were factors included but footnoted in the 2019 Permit. These “Project Wide Point Factors” also include the two new factors – HPGTA and Watershed Collaboration. Having these factors explicit in the table make it easier to see how the project points apply and will help make accounting across projects and Permittees more uniform. This column is also broken out, so that design stage and complete/maintenance stage projects will be totaled separately.
- **Total Points for Projects #1-5** is a new column to help Permittees track the points for these five project types to see if they are meeting the 200 point minimum. The template spreadsheet will automatically sum these points, by project stage and an overall total.
- **Comments** has a few new notes about identifying project and participants in a watershed collaboration, what existing plan any existing watershed plan point factor references, and how a project benefits overburdened community(ies). This column can still be used for any relevant information Permittees would like to add.

Table 2: SMED Program Point Factors

There are changes to the point factors, as shown in Appendix 12, Table 2, described below.

- Doubling of the point factors for flow control, runoff treatment, flow control or runoff treatment in a known problem area, meeting the new and redevelopment standards, a category, previously called “Meets WQ standards for target pollutant,” and providing LID performance. This is to incentivize structural stormwater facilities to manage runoff, especially from roads and car habitat.
- Increasing the point factors for projects that provide enhanced or phosphorus treatment. This acknowledges the increased treatment from these facilities and keeping them in line with other point factors.
- Doubling the point factor for maintenance with capital construction costs \geq \$25,000. This acknowledges that many Permittees have a back log of large maintenance project needs and provides some incentive to address these.
- Decreasing the point factor for sweeping and line cleaning. This is in response to the SSC annual reporting, and to bring the point calculation more in proportion with other project types and the more temporary nature of these activities relative to a flow control or treatment facility.
- Increasing the point factor for projects that implement an approved plan those that benefit overburdened communities. This is in response to the need to better serve overburdened communities.
- Adding a point factor for High Pollutant Generating Transportation Areas. The HPGTA factor is to in response to the need to prioritize treating road runoff.
- Adding a point factor for watershed collaboration projects that are implemented to encourage projects that involve more than one jurisdiction to address retrofit needs in a drainage basin. There was strong interest from the SSC PAC in ways that the SSC Program could assist with these types of projects.

How to Calculate Area and SSC Points for Small Projects under 1 Acre

This is a new section based on simplifying the reporting on small projects, as referenced in section above under “Basin Area” definition. The goal is to make reporting on projects under one acre easier to report so that Permittees report on these smaller projects. There was strong interest from the SSC PAC to simplify reporting for smaller projects.

For these projects, the total drainage area is considered the basin, and this is multiplied by appropriate SSC Program Factor(s), instead of having to first calculate the equivalent area.

How to Calculate Area and SSC Points for Watershed Collaboration

This is a new section, outlining the different ways that points are allocated for watershed collaboration, depending on if a collaboration is under development or the project is being implemented. The idea behind this reporting approach is to

acknowledge the effort and time that is required to develop agreements and funding for a collaboration across jurisdictions. Therefore, points are allocated for milestones in the development- signed agreement and funding. Then, once a collaborative project has been committed to and is underway, the participating Permittees can apply a watershed collaboration project type and point factor to their assigned area of the project.

E. WWA PHASE II: Stormwater Management for Existing Development (SMED) – proposed new program for WWA Phase II (S5.C.7)

The remaining portion of this section applies to WWA Phase II Permit only. The Western Washington Phase II Municipal Stormwater Permit contains requirements for Permittees to develop and implement stormwater management programs (SWMP) that take a comprehensive approach to address runoff from urban environments – including public education and outreach, operations and maintenance, controlling runoff from new and redevelopment project sites – to name a few of the required programs. However, addressing stormwater impacts from new development and redevelopment at the site and subdivision scale will not adequately address legacy impacts from previous development patterns and practices, nor will it serve to protect areas providing ecological services for stormwater management. It is clear that we cannot protect the state’s waters without also addressing degradation caused by stormwater discharges from existing developed sites. Emerging science on the impacts of road runoff, particularly the chemical 6PPD/6PPD-quinone, also highlights the urgent need to increase stormwater management infrastructure and other BMPs to help manage the issue based on what we know today. We will continue to learn and adapt as the research progresses. Similar to the rationale for the need to have stormwater planning as a SWMP component, strategic stormwater investments through SMED will serve to bring environmental improvement on a faster pace, and opportunistic stormwater investments are intended to encourage any feasible project to include stormwater management where it makes sense.

F. Phase II SMED Background

The 2008 Pollution Control Hearings Board (PCHB) Phase I ruling acknowledged the need for a watershed-scale approach to stormwater management based on the testimony of stormwater experts on all sides of the appeal. Scientists and policymakers recognize that it is not possible to maintain water quality and aquatic habitat in Washington State without considering land use and how the landscape is developed. This must occur at a scale that is broader than individual site and subdivision projects. The PCHB directed Ecology to use Permit requirements to include watershed-scale planning as a water quality management tool to meet MEP and AKART. This proposal builds on previous planning permit requirements to begin implementation of those plans or relevant projects.

In developing the preliminary drafts for both Phase I Structural Stormwater Control (SSC) and the WWA Phase II “retrofit approach” Ecology considered early input on permit reissuance and the recommendations and conversations with the SSC Policy Advisory Committee (PAC); a committee made up of Phase I and Phase II permittees as well as environmental non-profit groups. Recommendations include incentivizing watershed collaboration in permit requirements, as well as right-sizing, or scaling, permit requirements to better align with the variety of Phase II Permittees we cover under one general permit. PAC members discussed a retrofit approach for Phase II Permittees, provided ideas, and shared important considerations. Due to the make-up of the PAC members, there were multiple perspectives offered. These ranged from not including these types of requirements in the Phase II permit, to having a simple reporting requirement, to requiring stormwater BMPs at some level based on a metric to scale the requirement (so that it is not the same level of effort for a small jurisdiction versus a larger jurisdiction). The feedback informed Ecology of Phase II’s potential limits in implementing a retrofit program, and the desire to address stormwater impacts to receiving waters.

Ecology prepared a preliminary draft concept paper for informal comment in early 2023 that presented how the Phase II Permit could adapt the SMAP and PH I SSC Program into a retrofit program that could match the Phase II Permittees’ variable landscapes, needs, and resources. We received 29 comment letters on both the Phase I and WWA Phase II preliminary drafts for SSC and the proposed PH II approach. To summarize the informal comments, the letters expressed support, requested clarifications, or suggested alternative scales of level of effort to consider. For the formal draft, Ecology made a number of edits for clarity but ultimately maintained many of the same concepts and proposed level of effort, which is scaled by population, similar to the SAM contributions and EPA Phase II urban areas designation regulations.

The proposed program will contain two main provisions:

1. Strategic investments for stormwater management actions: Aimed at leveraging the SMAP and implementing the projects identified through that process, this is intended to drive strategic investments in stormwater management actions and infrastructure. Strategic investments would prioritize structural BMPs such as stormwater facility retrofits. If the SMAP development indicated these structural BMPs were infeasible or that an alternative management approach was more beneficial, other stormwater management actions such as focused source control or land management strategies may be implemented.

2. Opportunistic stormwater controls: Aimed at encouraging eligible project types to improve stormwater management infrastructure. These projects do not need to be included in an SMAP to help address the stormwater runoff issues in the area. This is intended to drive stormwater investment wherever feasible and needed. This provision is modeled after the Phase I SMED Program (formerly named Structural Stormwater Control (SSC)), including the list of eligible project types.

Permittees will be required to meet an overall “level of effort” (i.e., performance measures in the term use in the Permits) and be able to use one or both provisions to meet the requirement. This may change in the future permits as we learn how to best apply and determine level of effort.

G. Strategic investments for stormwater management actions

Ecology’s draft proposal for a Phase II “retrofit program” builds on the Stormwater Management Action Plans (SMAP) required in the current 2019 permit, which required Permittees to:

1. Conduct a receiving water assessment to ensure that Permittees compile and review existing data and information on their receiving waters and contributing area conditions;
2. Develop a receiving water prioritization method and process to rank high priority areas where stormwater retrofits and other management actions would provide a water quality benefit to receiving waters; and
3. Use the prioritized ranking as the basis for creating a plan for one priority area that takes into account tailored stormwater management strategies, including identification of the potential need for stormwater treatment or flow control BMPs to address existing or planned development.

The SMAP for the priority catchment is required to identify:

- A description of the stormwater facility retrofits needed for the area, including the BMP types and preferred locations;
- Land management/development strategies and/or actions identified for water quality management; and
- Targeted, enhanced, or customized implementation of stormwater management actions related to permit sections within S5, including:
 - IDDE field screening;
 - Prioritization of Source Control inspections;
 - O&M inspections or enhanced maintenance; or
 - Public Education and Outreach behavior change programs.

Identified actions shall support other specifically identified stormwater management strategies for the basin overall, or for the catchment area in particular, and include:

- If applicable, identification of changes needed to local long-range plans to address SMAP priorities.
- A proposed implementation schedule and budget sources for:
 - Short-term actions (i.e., actions to be accomplished within six years), and
 - Long-term actions (i.e., actions to be accomplished within seven to 20 years).
- A process and schedule to provide future assessment and feedback to improve the planning process and implementation of procedures or projects.

SMAPs are to identify stormwater facility retrofits and targeted non-structural BMPs to improve receiving water conditions. Permittees were required to submit their SMAPs at the end of March 2023.

H. Opportunistic stormwater controls

The proposed Phase II approach will use elements from the Phase I Structural Stormwater Control (SSC), (SMED Program in 2024 Permit term). The Phase I elements used specifically are the project types that are eligible for providing credit to the level of effort, as well as the method for calculating the area being treated by the stormwater BMP – i.e. the method to determine “equivalent area” that is meeting new and redevelopment standards from the permit’s Appendix 1. Although retrofit projects may not always be able to meet new and redevelopment standards for BMP sizing, the equivalent area calculation provides a means of comparing the water quality or flow control benefit of the project.

The Phase I SSC/SMED Program requires Permittees to design and construct eligible projects based on a locally developed program that includes a process to prioritize and implement projects. This retrofit program includes a list of eligible project types which can receive Program Points, or credit, toward meeting a required level of effort to comply with this provision. To simplify the reporting and calculation metric, the Phase II approach does not propose using the Phase I SSC/SMED Point process, but an alternative method described later in this document. We expect to be able to adaptively manage this approach as needed for future permit cycles. The following SSC (SMED) Qualifying Project Types are proposed to be included in the Phase II approach for determining the eligible project types that can receive credit towards the level of effort.

I. SSC (SMED) Qualifying Project Types

1. New flow control facility;
2. New runoff treatment facility (or treatment and flow control facility);
3. New LID BMPs;
4. Retrofit of existing treatment and/or flow control facility;
5. Property acquisition;

6. Maintenance with capital construction costs \geq \$25,000;
7. Restoration of riparian buffer;
8. Restoration of forest cover;
9. Floodplain reconnection projects;
10. Removal of impervious surfaces;
11. Sweeping (previously called “other actions”)
12. Line Cleaning (previously called “other actions”); and
13. Watershed collaboration (new – see Phase I SMED preliminary draft).

J. Non- Qualifying Project Types

- Projects that do not have a nexus with the current MS4 or do not prevent future MS4 impacts.
- Projects that occur within the receiving water do not qualify, such as:
 - In-channel habitat and stream restoration;
 - Fish barrier removal;
 - Stabilization of down cutting;
 - In-stream culvert replacement;
 - Mitigation projects otherwise required to compensate for problems caused by excessive stormwater runoff peak flows and geomorphologically significant flows; and
 - Wetland restoration projects may qualify if existing degraded wetlands are designed to become treatment wetlands in accordance with the SMMWW. Such a project would be a “New Treatment Facility” Project Type.

These eligible project types, and the equivalent area calculation from the Phase I SMED Program will also be used to help quantify SMAP projects as well. Non-structural BMPs from SMAP and Phase I SMED are important source control practices – reporting these actions will be important to understand the efforts taken to improve receiving waters. Ecology proposes a method to calculate equivalent acres for the non-structural BMP project types, described below.

K. WWA Phase II Proposed level of effort

This draft proposes a scaled level of effort to address the variety of Phase II Permittees covered by the Permit. We reviewed several retrofit programs that are included in other Municipal Stormwater Permits in the country, as well as looked at alternative metrics for scaling, including impervious surface, median household income, housing units, or additional economic factors, such as stormwater utility revenue and grant funding. We also considered the preliminary draft comments. Each metric has its own advantages and disadvantages. Like the preliminary draft, this proposal landed on population as the method to scale the level of effort for Phase II jurisdictions because population data is available, reliable, and balances some resources and challenges for permittees. The proposed level of effort meets MEP and AKART based on best professional judgement from projects that have been

funded by Ecology grants, what can be achieved by Phase I Permittees (with different resources than Phase II acknowledged), and what other areas in the nation are required to meet in MS4 Permits. See the draft WWA Phase II Appendix 12 for the proposed required level of effort – or the assigned equivalent acres- for each Phase II Permittee.

1. All Phase II Permittees will be assigned a level of effort of five acres area “managed” per 50,000 population.
 - a. Acres of land “managed” are based on equivalent area calculations from Phase I SSC Program (proposed to be SMED Program). This means that a project will be given credit based on new and redevelopment standards. This equivalent area calculation is based on a scale that compares the amount of runoff treatment or hydrologic control achieved through the proposed project to the amount achieved if you designed the project to meet the new and redevelopment criteria for the area draining to the new BMP(s). For projects under an acre, the total basin area may be used rather than the equivalent area calculation. This calculation translates most easily for flow control, runoff treatment, or LID BMPs.
 - i. Equivalent area is determined according to the same process as the Phase I permit. A new Appendix 12 for the Phase II Permit provides guidance on calculating equivalent area per project type.
 - b. Assignment of acres of land “managed” by Permittee is proposed to be scaled:
 - i. Based on 2020 population, with a minimum of 0.3 acres to a maximum 15 acres.
 - c. Permittees that complete projects by the expiration date of this permit that will exceed the area required for this permit term may use the excess as a credit to be used for the 2029 Permit term, not to exceed 50% of the next Permit’s requirement.
 - d. Projects that have started construction on or after January, 2023 and projects not yet started but fully funded by March 31, 2028 can be included to meet this requirement.
 - e. Non-structural BMPs associated with the SMAP may also contribute to meeting this requirement. SMAPs are required to identify if any of these actions are appropriate for the priority catchment but these actions do not easily translate to an acres managed calculation, therefore Ecology proposes these non-structural BMPs are eligible to receive 25% of the assigned equivalent acres:
 - i. Land Management/development strategies
 - ii. Targeted, enhanced or customized implementation of stormwater management actions related to permit section S5, including:
 - 1) IDDE field screening;
 - 2) Prioritization of IDDE, Source Control, or O&M inspections; or
 - 3) Public Education and Outreach behavior change programs.

Non-structural BMPs are essential tools for stormwater management and are needed in addition to stormwater facility retrofits.

- f. Non-structural BMPs associated with opportunistic project types are also eligible for up to 25% of the assigned equivalent acres. Non-structural project types also have multipliers to use in the equivalent area calculation which follows the project point factors from the Phase I SMED Program. Actions above the 25% may still be reported but will not receive credit.
- g. Non-structural BMPs may only receive credit in the SMED program if they are in addition to the actions required in the respective programs in S5.C.
- h. Individual requirement with collaborative allowance.
 - i. Each Permittee is required to implement 0.3 acres within their own jurisdiction but may contribute to meeting an overall regional goal outside of their defined permit coverage area.
 - 1) For Permittees assigned 0.3 acres, participation and in-kind services to regional collaboration/watershed projects may count as the contribution for this permit cycle, if there is regional agreement on the strategy.

Permittees may contribute to a regional goal, which will be the sum of Phase II partners assigned acreage. Projects may be implemented outside of permit coverage areas to meet their individual requirement or regional goal, so long as the receiving waters within the permit coverage areas will benefit.
 - 2) If a Phase II Permittee partners with a Phase I Permittee, Phase I Permittees are still responsible for their required level of effort as proposed in their respective permit programs.
 - 3) If collaborative projects reach an interlocal agreement or committed funding stage, Phase II Permittees would get up to 25 percent of their acreage credit towards these collaborative projects.

Permittees will need to complete or fully fund projects that will provide runoff treatment or flow control for the assigned equivalent acres (comparable to Appendix 1 new and redevelopment standards) or other SMAP or SMED projects that contribute to the assigned amount).

Permittees are also required to develop a method and report project costs for the estimated or projected equivalent acres managed by stormwater facility retrofits and SMAP projects during the 2029 permit term. This is to help Ecology prepare for the next permit reissuance with information from Permittees based on their own planning estimates and projections.

WWA Phase II Appendix 12 as proposed follows a similar approach as the Phase I Permit Appendix 12. It describes SMED details such as the required level of effort, project types, how to calculate the required level of effort and how to report program details to Ecology. The draft Appendix 12 describes the reporting details and an excel template for reporting may be developed for the final permit stage.

8.6. S6 - Stormwater Management Program for Secondary Permittees

Secondary Permittees are public entities such as ports, park districts, school districts, colleges and universities, state institution campuses, state military campuses, irrigation districts, and diking and drainage districts that are located in Phase I and Phase II coverage areas and own or operate a regulated MS4. This section of the Permit describes the requirements that apply to Secondary Permittees and makes up the core elements of their Stormwater Management Program.

The SWMP for Secondary Permittees is intended to apply to a wide variety of Secondary Permittees. The requirements of Special Condition S6 will apply differently depending on the type and function of the public entity, the size and nature of the coverage area, and the specifics of the entity's MS4. For example, ports covered by the Permit may lease property to other entities that manage stormwater on the leased property, and in some cases that property may be covered by the *Industrial Stormwater General Permit* or another NPDES stormwater permit. Alternatively, many colleges and universities have resident and commuter student populations. Diking and drainage districts may serve more than 1,000 residents because their service areas are now partially in urban areas, but they have little or no authority over activities on those properties. Some Permittees may rely on the local jurisdiction to regulate discharges into their MS4s, others may rely on another NPDES permit for such discharges, while others such as school districts may rely on internal policies that control operations on all the lands served by their MS4.

Ecology is proposing several updates as described to the Secondary program to bring some alignment to the Secondary Programs with the city/county SWMP Programs. For purposes of this Fact Sheet, a description of the program is provided.

8.6.1. S6.A Secondary Permittees

This section describes the basic SWMP responsibilities and how the implementation schedule will proceed for new Secondary Permittees. This section is updated to require submittal of the SWMP with the AR as is required for city/county Permittees. This will make oversight of the Secondary Permittee's SWMP Program easier.

Secondary Permittees may begin Permit coverage at any time during the Permit term, and the implementation schedule may extend from one Permit term to the next. Secondary Permittee implementation schedules are calculated based on the date of Permit coverage. As New Secondary Permittees begin Permit coverage and fully implement their requirements, they will be subject in future Permit terms to deadlines for the “initial” date of Permit coverage. Ecology uses this approach to direct continuing Secondary Permittees to continue implementing their programs according to their individual schedules, and to direct New Secondary Permittees to phase in their programs according to individual schedules over a four and one-half year period. Once the SWMP is fully implemented, Ecology expects all Secondary Permittees to continue full program implementation.

8.6.2. *S6.D Stormwater Management Program*

The purpose of the SWMP is revised to include descriptions of the planned program activities for the upcoming year. This could be relatively short and should include a brief description of planned activities for public education and outreach, field screening, or stormwater system maintenance.

8.6.3. *S6.D.1 Public Education and Outreach*

Like the city/county update to the Education and Outreach Program, similar language is added to include the education topic of source control for PCB containing building materials to reduce pollution to the MS4.

8.6.4. *S6.D.2 Public Involvement and Participation*

The provision to address Secondaries that do not maintain a website and would have Ecology post the SWMP on their website is proposed to be removed. This is not relevant and has not been used. No other significant changes proposed.

8.6.5. *S6.D.3 Illicit Discharge Detection and Elimination*

See earlier discussion regarding PCBs. Similar to the city/county IDDE proposed program update, the conditionally allowable discharges listed in the IDDE program is revised to address external building washdown of buildings built before 1950 and after 1980, and the buildings built between that time – which are those most likely to have used PCB-containing building materials. The provisions require that buildings built between 1950-1980 be assessed for PCBs before the washdown water is allowed to discharge to the MS4. This is to prevent and avoid PCBs from entering the MS4 and discharging to waters of the state.

The mapping section of IDDE proposes a date by which the required mapping format is electronic and includes the similar updates as city/county to report outfall locations, size and material, using a standard template provided with the Annual Reports (see earlier discussion regarding outfall reporting). This aligns with other Permittee types and will aid in providing Ecology’s Water Quality Atlas additional NPDES stormwater outfall data. City/county Permittees were required to transition to electronic maps in the current 2019 Permit.

8.6.6. S6.D.4 - Construction Site Stormwater Runoff Control

Secondary Permittees do not have land use authority under state law, and the requirements of this and the previous section refer to the obligation to comply with local ordinances governing these activities. Where the MS4 is interconnected with the local jurisdiction MS4, Secondary Permittees must coordinate to assist the local jurisdiction in achieving compliance with local codes. This might occur if the local jurisdiction needed assistance in addressing a discharge from a Secondary Permittee's MS4 that originated from a tenant's discharge into the MS4 of the Secondary Permittee.

No significant changes proposed.

8.6.7. S6.D.5 - Post-construction Stormwater Management in New Development and Redevelopment

The discussion regarding Construction Site Stormwater Runoff Control applies here as well.

No significant changes proposed.

8.6.8. S6.D.6 - Pollution Prevention and Good Housekeeping for Municipal Operations

The draft Permits require that operation and maintenance (O&M) of the Secondary Permittee's MS4 must include standards consistent with or more protective than those in Ecology's updated *SWMMWW* or *SWMMEW*. The updated Ecology manuals may include new standards relevant to the Secondary Permittee's MS4.

Ecology proposes language to require Secondary Permittees to review maintenance standards to ensure they are consistent with any updates in local or Ecology standards. Secondary Permittees would update their maintenance standards to be consistent with the 2024 manual updates.

Two additional updates to the Secondary permittee's O&M Plan align with the city/county updates regarding PCBs in building materials.

First, regarding external building maintenance, the language proposed requires Permittees with buildings built or renovated between 1950-1980 to assess building materials for PCBs consistent with *How to Find and Address PCBs in Building Materials* guidance (Ecology, 2022; Publication No. 22-040-024) prior to exterior building washdown. Second, is the addition of source control BMPs for Permittee-owned buildings in preparation for and during renovation and demolition. Both of these proposed changes are to incorporate recent guidance on how to prevent PCB-containing materials from coming into contact with stormwater and discharging to the MS4

8.6.9. Phase I Only - S6.E Stormwater Management Program for the Port of Seattle and Port of Tacoma

S6E.1.a.- Education Program

There is a new proposed requirement in the Draft Permit language for stenciling storm drain inlets owned or operated by the Ports. This change promotes consistency with the Stormwater Management Program for Secondary Permittees. Since Ports' lands are often adjacent and directly connected to receiving waters and have automotive and industrial pollutants, educating staff, contractors, and other visitors not to dump any materials down the storm drains is an important step for pollution prevention.

S6.E.7c. – Operation and Maintenance

There is a new proposed requirement in the Draft Permit language requiring quarterly street sweeping on lands owned or operated by the Ports. One sweeping shall be between July and September each year, and for calendar year 2027 only one sweeping is required. Ports may continue to implement existing sweeping programs that are of equivalent or greater frequency. Ports may also document alternative sweeping timing and frequency based on local conditions.

This change promotes consistency with the other Municipal Stormwater Permits. Phase I, EWA and WWA Phase II Draft Permits are also proposing requiring street sweeping. The Phase I MS4 Permit is proposing quarterly street sweeping in identified high priority areas. Since Ports' lands are often adjacent and directly connected to receiving waters and have transportation and industrial pollutants, regular sweeping on any of its lands, if not already in place, would be beneficial and meet MEP and AKART.

8.7. S7 - Compliance with Total Maximum Daily Load Requirements

Under some circumstances, when the water quality of a surface water is impaired, the federal *Clean Water Act* requires states to develop total maximum daily loads (TMDLs) for those impaired waters. Pollutant loads are set to make surface waters fishable and swimmable; these loading limits are known as Total Maximum Daily Loads (TMDLs). A water quality clean-up plan and TMDLs are developed through a defined process to identify the maximum amount of a pollutant that may be discharged from all sources to a water body without causing violations of water quality standards. Best management practices and pollutant control strategies are developed and presented in a TMDL Implementation Plan. Implementation of the Plan is intended to keep the pollutant loading at or below that critical level. TMDLs include an assignment of Waste Load Allocations (WLAs) to NPDES permitted dischargers, and Load Allocations to control the load from non-point pollution sources.

There are times when a TMDL may identify Stormwater dischargers authorized by NPDES Permits that are required to implement actions in addition to the permit requirements in S5 of the Permits to achieve the reduction in pollution called for in applicable TMDLs; these actions are identified in Appendix 2 of their MS4 Permit. Applicable TMDLs are those which EPA has approved prior to the date the final Permit is issued, or prior to the date that Ecology issues coverage under these Permits, whichever is later. Information on Ecology's TMDL program is available on [Ecology's website](#)¹⁴.

Ecology incorporates these required actions in the Permits through Special Condition 7. When a TMDL identifies actions needed by municipalities to reduce their contribution of a pollutant, those actions are included in Appendix 2 as requirements for individual Permittees. The proposed Appendix 2 includes both updated actions from the current (2019) Permit term and new actions proposed for TMDLs approved since the 2019 Permits were issued.

The stormwater management program required by these Permits is designed to reduce pollutants reaching stormwater and aims to make progress in preventing pollution and cleaning up water bodies impaired in part by stormwater discharges. Ecology will focus TMDL implementation actions and resources where the TMDL study identified the most severe problems and where the actions identified in the TMDL process will have the biggest impact on water quality. Ecology will continue to engage with Permittees during the TMDLs development and implementation process when applicable to their jurisdiction.

Ecology reviews EPA-approved TMDLs to identify those that assign a Waste Load Allocation to one or more municipal stormwater Permittees. Ecology then identifies the actions for Permittees and compares them to existing Permit requirements. When the implementation of existing Permit requirements is adequate to address the municipalities contribution of pollutant loading, no additional actions will be identified in Appendix 2 of the MS4 permit.

Where water quality monitoring is required, a Quality Assurance Project Plan (QAPP) is required when the sampling is part of the surface water characterization. A QAPP is not required, nor appropriate, for investigative sampling.

The proposed Permits also include updated actions for TMDLs that are listed in the current (2019) permit's Appendix 2. Updates may include removing actions now completed, moving to the next logical action, or incorporating new actions based on lessons learned from permittees and from the implementation conducted during the current Permit term.

¹⁴ <https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Total-Maximum-Daily-Load-process>

Before releasing the draft Permits Ecology informed affected Permittees of the range and scope of actions it expected to propose in the draft Appendix 2. In some cases, Ecology staff met with affected Permittees to review proposed language and ask for feedback. This “no surprises” approach reflects Ecology’s recognition of Permittees local knowledge in ground-level efforts to clean up impaired waters.

The permit section S7 is proposed to be updated to remove language that describes actions Ecology may take when a TMDL is approved mid-permit cycle. The language is incorporated into the Fact Sheet.

TMDL requirements associated with TMDLs completed after the issuance date of this permit only become effective if they are imposed through an administrative order issued by Ecology.

TMDLs approved by EPA since the issuance of the 2019 Permits with actions to address municipal stormwater and proposed action added to Appendix 2 include:

- Padilla Bay Tributary Fecal Coliform;
- Lower White River pH;
- Budd Inlet Dissolved Oxygen;
- Mid-Yakima River Basin Bacteria; and
- Little Spokane River Dissolved Oxygen

8.8. S8 - Monitoring and Assessment

This section defines adaptive management monitoring requirements. In the 2009 Pollution Control Hearing Board (PCHB) ruling on appeal of the Phase II Permit, the PCHB concluded that Ecology require monitoring in future Phase II Permits. Ecology and Permittees worked together to develop the current approaches in the western and eastern Permits.⁸⁰

The Phase I and WWA PH II Permits have had very similar requirements since the creation and implementation of the regional monitoring program in the 2013 Permits known as Stormwater Action Monitoring (SAM), with an option to conduct independent stormwater discharge monitoring as an alternative. The eastern Permit has had a different set of requirements from western and was developed in collaboration with eastern Permittees which requires the development and implementation of SWMP effectiveness studies – these can be conducted together as a region or independently.

While the 2024 western Permits maintain the same general framework and options for S8, the eastern Permit updates propose adding options similar to those offered in the western Permits. Specifically, the option to contribute funds to the SAM Effectiveness and Source Identification studies, or conduct stormwater discharge monitoring. The option to conduct a regional or independent SWMP effectiveness study is also still available.

The following provides background on SAM overall and the proposed permit changes.

8.8.1. New Permittees

Because new Permittees are just starting their programs, Ecology is not requiring them to participate in regional monitoring studies or conduct monitoring during the 2024 Permit term. New Permittees should plan to either participate in regional monitoring studies or conduct individual monitoring in future Permits. See respective Permits for description of program and options available. Permittees that were new in the 2019 Permit are now included in the requirements.

8.8.2. Stormwater Action Monitoring Collective.

The 2024 Phase I and WWA Phase II Permits continue the collaborative regional stormwater monitoring program approach, now known as Stormwater Action Monitoring (SAM) that began in the 2013 Permits. Since its beginning, SAM initiated a total of 22 effectiveness, five source identification, and eight status and trend monitoring projects. SAMs primary audience is stormwater managers, and a SAM communication strategy was developed and implemented in 2017.

SAM ensures regional projects provide relevant management information to adapt and improve Permittees' stormwater management program implementation. The regional projects also inform Ecology's Permit requirements. SAM projects include status and trend monitoring projects, effectiveness studies, and source identification projects. The SAM Collective Fund is managed by Ecology with oversight provided by Stormwater Work Group (SWG). SAM projects are prioritized and approved by SWG.

Permittees choose to collaborate with each other, and other stakeholders, by committing and sending annual payments to the SAM Collective Fund. The contribution amount is determined by the population in Appendix 11 (western Permits; Proposed Appendix 8 in eastern Permit). Cost-sharing relieves Permittees of the duty to conduct individual adaptive management monitoring projects at smaller scales.

8.8.3. History of SAM

Ecology's MS4 Permits have never included compliance monitoring, but instead have required stormwater discharge characterization and effectiveness studies by Phase I Permittees. The earlier Permits' Phase I monitoring requirements provided useful information, but at significant cost and effort. In 2005 a group of Phase I and Phase II Permittees formally asked Ecology to consider a different approach to MS4 permit monitoring. The Puget Sound Monitoring Consortium (PSMC) was funded by the state legislature in 2007 at the request of local jurisdictions and other stakeholders.

The 2007 Phase I Permit required each individual Permittee city, county, and port to conduct stormwater discharge monitoring, stormwater treatment and flow control facility evaluation monitoring, and targeted program effectiveness monitoring. The 2007 Phase II Permit did not include monitoring requirements; it required each Permittee to submit an effectiveness study proposal in their Annual Report in 2011. The lack of Permit monitoring requirements in the 2007 Phase II Permits was challenged, and the Pollution Control Hearing Board (1) concluded that Ecology should require monitoring in subsequent Phase II Permits and (2) endorsed the PSMC process for framing a collaborative regional monitoring program.

In 2008 the PSMC convened the Stormwater Work Group (SWG), with Ecology providing staff support. The SWG is a formal stakeholder group with a charter and bylaws; the SWG updates its biennial work plan each year. SWG members are designated as official representatives by the caucuses of federal and state agencies; by a local jurisdiction caucus; and by environmental and business groups. Additional seats at the table are designated for tribes, ports, and agriculture. In 30-plus meetings from 2008-2010, the SWG deliberated and reached consensus agreement on nearly all 88 stakeholder recommendations submitted to Ecology for a comprehensive scientific framework, implementation plan, and Permit monitoring requirements. Ecology then wrote the 2013 Permit monitoring requirements to implement the SWG's recommendations.

The long-term status and trend monitoring in western Washington provides Ecology the ability to evaluate and continue to adapt the western Permits over time. The stormwater management effectiveness studies and source identification projects provide more regional or statewide applicability and robust findings than would be produced by requirements for each individual Permittee conducting their own studies.

8.8.4. Process for selecting SAM studies

The SWG selects and approves all activities funded by the SAM cost-share accounts. The SWG gathers stakeholder input and sets priorities for each of the three strategic categories where SAM activities are targeted to answer stormwater management questions: long-term status and trend monitoring, effectiveness studies, and source identification.

SAM projects provide regionally applicable information to improve how stormwater is managed either by informing Permittees' or developers' implementation of BMPs or by improving Ecology's permits, guidance documents, or BMPs in the *Stormwater Management Manual for Western Washington*. SAM studies work together to provide information about how our overall approach to stormwater management is working: Are conditions in receiving waters improving? Do BMPs function as intended? What are the sources of pollution and how can we find and reduce them?

Topics for study under SAM are developed in stages and evolve through the process to reflect the needs of stormwater managers. The SWG conducted solicitation rounds in 2014, 2016, and 2020 to identify and select SAM effectiveness and source identification studies. The solicitation process included technical reviews by Ecology’s engineers and the SWG’s effectiveness subgroup (Permittees, consultants, and state and federal agency scientists) and Permittee voting to rank the proposals. Permittees will continue to vote on individual effectiveness studies and source identification project proposals prior to SWG approval for SAM funding. A fourth solicitation round is currently underway in 2023. It has solicited effectiveness studies for funding beginning in 2024.

In 2018, the SWG began a year-long process to adjust the study design approach and priorities for future status and trends monitoring projects. The Puget Sound streams and nearshore monitoring projects adopted a new study design in 2020. The new design improves statistical robustness and trend detection power, better captures annual climate variability, and is less expensive to implement than the previous design. Sampling sites represent the full range of urban and urbanizing conditions across the region using a probabilistic design approach. Detailed information about the study design is available at the [SAM Status & Trends website](#)¹⁵.

8.8.5. Communicating and applying findings from SAM studies

Each contracted SAM project is described on the [SAM web pages](#)¹⁶ where Permittees and stakeholders can follow project development and findings. A two-page fact sheet is posted for each completed SAM project. The fact sheet includes details about the stormwater management problem addressed by the project, study findings, and recommendations. The fact sheets also include sections titled “Why does this study matter?” and “What should we do with this information?” and “What will Ecology do with this information?” Permittees should read through the fact sheets and apply the findings to their stormwater management programs as applicable. Stormwater managers may also read the full reports posted on the SAM web pages.

¹⁵ <https://ecology.wa.gov/Regulations-Permits/Reporting-requirements/Stormwater-monitoring/Stormwater-Action-Monitoring/SAM-status-and-trends>

¹⁶ <https://ecology.wa.gov/Regulations-Permits/Reporting-requirements/Stormwater-monitoring/Stormwater-Action-Monitoring/SAM-status-and-trends>

8.8.6. Oversight of SAM contracting decisions and expenditures

Ecology agreed to manage the SAM program, per the SWG's 2010 recommendations, with the condition that the SWG oversee and make decisions for funding projects with the SAM cost-share accounts. The SWG's Pooled Resources Oversight Committee (PRO-C) provides this oversight, with a focus on projects' scopes, schedules, and budgets. Ecology's roles are to collect, administer, and manage the SAM cost-share accounts and contracts. Ecology contracts with local governments and others to conduct the SAM studies that have been approved by the SWG. Each year, the SAM coordinator outlines the progress SAM made during the prior calendar year in an Annual Report to Permittees. The SAM Coordinator also delivers regular budget and progress reports to the PRO-C and SWG as part of the SAM oversight process. These reports, and SAM project deliverables, are posted on the [SAM web pages](#)¹⁷.

The PRO-C ensures transparency, efficiency, and accountability in Ecology's SAM contracting decisions and cost-share account expenditures. The PRO-C has a charter and bylaws, and the PRO-C members are representatives of Permittees and other stakeholders. The PRO-C meets regularly for detailed program management discussions with Ecology's SAM Coordinator. The PRO-C and SWG provide feedback to Ecology on SAM implementation.

8.8.7. Cost allocation approach

A table listing each Permittee's cost shares for S8.A Regional status and trends monitoring and S8.B effectiveness studies and source identification is provided in the proposed Appendix 11. The anticipated SAM costs are approved by SWG and allocated by population using the same approach as for the 2019 Permit with updated data from OFM that was available in April 2023 (i.e. 2022 population estimates). The regional population covered by the Phase I and Phase II Permits increased by 8%.

Population data for the eastern Washington Permittees was used to similarly develop the cost allocations for the proposed option to contribute to the SAM collective Effectiveness and Source ID Studies in the 2024 Permit. Eastern Washington Permittees' contribution amounts are listed in the Western Washington Permit Appendix 11 and that same appendix is proposed to be added to the eastern Permit as a new Appendix 8. The appendix is the same across all Permits and shows what all Permittees contribute for transparency.

New Permittees in the 2019 WWA Phase II Permit were not included in the cost allocations for the 2019 Permits but are included in the cost allocations for the 2024 Permit for both S8.A.2 and S8.B.2. New Permittees in the 2024 Phase II Permit are not included in the cost allocations.

¹⁷ <https://ecology.wa.gov/Regulations-Permits/Reporting-requirements/Stormwater-monitoring/Stormwater-Action-Monitoring/Communications>

The Ports of Seattle and Tacoma do not have residential populations but they participate in the SAM Collective and are included in the cost allocations. The assigned population for the Ports' was increased by 8% for the 2024 Permit cost allocations.

The Washington State Department of Transportation (WSDOT) is covered by a separate MS4 Permit. WSDOT participates in the SAM Collective long-term status and trend monitoring in Puget Sound and the Lower Columbia regional areas. WSDOT conducts effectiveness studies per the requirements of their separate MS4 Permit. As agreed by SWG and stakeholders for the Puget Sound and Lower Columbia status and trend monitoring programs, WSDOT's cost allocation is set equivalent to the City of Kent for Puget Sound and to the City of Longview for the Lower Columbia region.

Future annexations could potentially affect the proportional allocation of cost shares determined by this approach. Because Permittees' cost shares will not be amended during the 2019-2024 Permit term, Ecology encourages local jurisdictions to consider addressing their financial commitments to SAM in future annexation agreements.

8.8.8. Compliance with monitoring requirements

Permittees who participated in SAM in the 2019 Permit and Permittees who choose to participate in SAM in the 2024 Permit must submit required payments to Ecology by the indicated due dates. Ecology will invoice Permittees three months in advance of each SAM payment due date. Receipts for each Permittee's annual payments into the SAM accounts are entered into PARIS by Ecology staff.

All Permittees must inform Ecology before December 1, 2024, as to which option under each section S8.A and S8.B the Permittee chooses to implement for the remainder of the Permit. Each Permittee must choose only one option for the duration of the 2024 Permit. Timely annual payments into the SAM collective fund(s) fully satisfy a Phase I or Phase II Permittee's obligations under S8. as described.

Ecology will administer the cost-share accounts and execute contracts to implement SAM projects under the oversight of the SWG and PRO-C. The status of SAM project implementation and production of monitoring data, related information, and other contract deliverables shall have no effect on any Permittee's compliance with this Permit.

8.8.9. Additional monitoring

Ecology believes that the responsibility for stormwater-related monitoring is shared among Permittees, the State, and the federal government. SAM does not, nor is it intended to, represent the total effort to collect meaningful information about stormwater impacts on receiving waters and effectiveness of stormwater management practices. Other local, State, and federal monitoring programs provide additional data, meaning, and context for SAM findings.

Participation in SAM does not fulfill a Permittee's requirement to conduct monitoring that may be required to implement the requirements of other sections of the Permits. SAM is not designed or intended to address monitoring necessary for illicit discharge detection, TMDLs, SMAPs, and other needs and priorities. Ecology recognizes that many individual jurisdictions invest a significant level of resources in these other types of monitoring both to implement these Permit-required activities and to otherwise inform their efforts to protect local water bodies.

The provisions of this Permit section meet Ecology's needs for adaptive management information and should be considered part of Permittees' stormwater management programs, as opposed to their monitoring programs. Some Permittees have asked Ecology to provide "credit" for their local monitoring activities in lieu of contributing funds for SAM status and trend monitoring, but the study designs and approaches to answer different questions at different scales are not scientifically compatible. To the extent that comparable methods are used for parameters common to SAM and local monitoring programs, the efforts can learn from – but not replace – each other.

Ecology has embraced the SWG formal stakeholder group recommendations for SAMs collaborative regional approach to Permit-required monitoring to minimize the diversion of resources away from local monitoring efforts and to provide meaningful information as a benefit to all Permittees.

8.8.10. Proposed changes to Eastern Washington Phase II

A Tree Canopy Assessment section is proposed in Monitoring and Assessment to include the requirement to adopt and implement tree canopy goals and policies to support stormwater management and water quality improvement in receiving waters. See additional discussion provided in the S5 Stormwater Planning section -where the same requirement is proposed in the western Permits. The eastern Permit does not have the same stormwater planning requirements at this time, so the Monitoring and Assessment program is an appropriate placement. While eastern WA climate and landscape is much different than western WA in relation to tree types and canopy extent, tree canopy still plays an important role for stormwater management in urban areas in eastern WA. Ecology expects eastern Permittees to consider different factors than western Permittees when developing their goals and policies around tree canopy for stormwater management. The resulting goals and policies will be different and appropriate to local jurisdictions as well. Ecology proposed a similar requirement with

the preliminary drafts but revised the proposal based on comments received. Comments from eastern Washington shared similar concerns as western regarding data sources to track and map tree canopy (which was revised for the formal draft proposal), but eastern comments were more concerned about having to plant trees as climate and landscape differences may make that challenging. The proposed requirement does not require tree planting, only that Permittees assess how existing tree canopy can be used for stormwater management and adopt locally appropriate goals and policies. Tree canopy planning may be an approach some will want to take. See additional discussion in the Stormwater Planning section.

In past Permit cycles, all eastern Washington city and county Permittees participated in a robust and extensive process to identify, prioritize, and select stormwater management program effectiveness and source identification study topics and questions. Currently, this Permit section requires Permittees to implement those studies that were identified and approved, as well as develop new studies. The studies are designed to assess the effectiveness of the Stormwater Management Program elements (SWMP) or specific stormwater BMPs. In some cases, Permittees work together to conduct these studies – with one Permittee taking on the role of ‘Lead Entity’ and additional Permittees participating by providing in-kind services or contributing funding. In other cases, a single Permittee conducts a study on their own.

The current 2019 Permit encourages collaboration between Permittees to meet this Permit section. There are ten designated Urban Areas in eastern Washington: Wenatchee, Ellensburg, Yakima, Sunnyside, Tri-Cities, Moses Lake, Walla Walla, Clarkston, Pullman, and Spokane. Any number of Urban Areas may work together on a single new study (e.g., all of the cities and counties in Yakima, Sunnyside, and Tri-Cities Urban Areas – or all EWA Permittees – can propose a single study as a regional group). This may result in up to, but no more than, ten new studies beginning by the end of the 2019-2024 Permit.

Early input sent to Ecology on the 2024 Permit included several suggestions and recommendations for:

- Flexibility;
- additional state resources to support permit requirements;
- more defined structure to effectiveness study selection;
- an option similar to the WWA Stormwater Action Monitoring (SAM) structure; and
- expanded receiving water monitoring.

Ecology heard from some Permittees that this Permit section is working for them, and collaboration with other Permittees results in studies that are informative to their region of the state. Other Permittees reported struggling with implementing studies – from the challenges of developing a meaningful study question, capacity to conduct a study, equity in partnerships between lead entity and participating entities, to funding challenges.

In preparation of the 2019 Permit reissuance, and in recognition of the differing climate and hydrogeologic settings in eastern Washington, Ecology asked the U.S. Geological Survey to evaluate existing information about stormwater impacts to receiving waters in eastern Washington and recommendations on a regional receiving water program. The review concluded that the receiving water monitoring approaches in Puget Sound and the Lower Columbia are not suitable for application in eastern Washington and recommended instead focusing on Stormwater Management Plans (SWMP) or BMP effectiveness studies. We propose to continue following these USGS recommendations.

Similar to options that were shared with the preliminary drafts, the following three options are proposed to meet Permit Section S8 for Effectiveness Studies in the 2024 eastern Permit term. Informal comments on these proposals seemed to garner some support for each of the options posed. Ecology is proposing the same options with the formal draft for public comment.

Permittees would be required to complete any studies started under the 2019 Permit and then are asked to select one of the following options for the 2024 permit term, there would be no changes mid-Permit cycle.

1. Permittees would retain the option to conduct effectiveness studies in a manner similar to the requirements in the current 2019 EWA Permit – Section S8.
2. Contribute funding to the existing SAM Effectiveness Study and Source Identification fund.
 - a. Contributions would be based on population and the rate per person that is charged from western Washington. So all Permittees are paying the same rate for Effectiveness Studies (\$0.37 per person). Because Ecology is not clear if all eastern Permittees will join SAM, the eastern WA population was not added to the total population and cost allocation formula. This has the effect of eastern WA contributions being additional to the total amount approved for that program. (See additional discussion on cost allocations below, and new EWA *Appendix 8 - Annual contribution amounts to Stormwater Action Monitoring Collective Funds*).
 - b. The payment is an annual payment that is required each year after opting into the program (e.g., by 12/2024, decide option and begin participation; by 8/2025, contribute funding).
3. Permittees would have an option to conduct stormwater discharge monitoring to characterize their municipal stormwater discharges in lieu of participating in either of the two regional effectiveness study options. This option is similar to the option provided to western Washington Permittees and would follow the requirements found in Appendix 9 (a new appendix for EWA Permit, Stormwater Discharge Monitoring). Permittees that choose this option would monitor 1-3 discharge locations under an Ecology-approved QAPP. Data would be reported annually and entered into Ecology's Environmental Information Management (EIM) database. A final report would be produced after 3 years of monitoring.

We are proposing stormwater discharge monitoring as an effectiveness study option for EWA. Municipal stormwater discharge monitoring was required in the 2007 Phase I Permit and continues today to be a monitoring option for all western Washington Permittees. Discharge monitoring is intended to characterize stormwater runoff quality and quantity at a limited number of locations (often an outfall) in a manner that allows analysis of pollutant concentrations and loadings, and changes over time. Appendix 9 outlines how discharge monitoring is designed and implemented under an Ecology-approved Quality Assurance Project Plan (QAPP). See additional discussion on Appendix 9 later in this document.

S8 has been reorganized to accommodate the proposed options. Once a Permittee determines which option to follow, Permittees only need to follow the relevant requirements to their option. The requirements to lead or join an urban area/regional effectiveness study maintains many of the same requirements from 2019 Permit.

8.8.11. Proposed changes to Western Washington (Phase I and Western Washington Phase II)

The western Permits provide the option of either paying into the Stormwater Action Monitoring (SAM) collective accounts or conducting stormwater discharge monitoring. There are two parts to the program - S8.A Regional status and trends monitoring and S8.B effectiveness and source identification studies. Phase and WWA Phase II Permittees can choose to participate in both or only one part of SAM.

Phase I Permittees also have the option of conducting an effectiveness study in lieu of paying half of the annual cost-share account contribution for effectiveness studies. Phase I Permittees who choose S8.B.2.c must fulfill the additional requirements in S8.B.2.c.ii. These Phase I Permittees must submit a detailed proposal following the template provided by Ecology. The “SWMP Effectiveness Study Proposal and QAPP Template” includes specific instructions for the information and organization required to meet both S8.B.2.c.ii.(a) and S8.B.2.c.ii.(b). This template was adapted from a document developed under an Ecology Grant of Regional or Statewide Significance for selecting and finalizing the Eastern Washington effectiveness studies during the 2014 Permit. Ecology believes the use and application of this template will improve study designs and ultimately broaden the applicability of study findings to other Permittees.

Permittees who choose not to participate in SAM, via either or both S8.A and/or S8.B, must fulfill the requirements of S8.C and Appendix 9, see additional discussion on Appendix 9 later in this document.

Proposed 2024 Permit conditions S8.A.1 and S8.B.1 require SAM contributions in the first year of the 2024 Permit by all Permittees who participated in those SAM components in the 2019 Permit. S8.A.1 and S8.B.1 support the business practice of spreading SAM contributions over five years, lowering Permittees’ annual contributions and helping the SAM Coordinator and PRO-C efficiently manage income and

expenditures. This approach was followed in the 2019 Permits. Permittees will be invoiced for this payment soon after the Permits are issued.

2024 Permit condition S8.A.2 is similar to the 2019 Permit condition but adds new Permittees that became covered in the 2019 Permit.

Clark County conducted the LC Urban Streams monitoring study in the 2019 Permit cycle. The proposed updates continue the regional programs as options for compliance.

As indicated above, the cost allocations for each Permittee have changed. At the February 8, 2023, meeting, the Stormwater Work Group approved the following 2024-2029 budget for SAM:

- Puget Sound Status and Trends \$ 5,573,300
- Lower Columbia Status and Trends \$ 875,112
- Effectiveness Studies and Source ID \$ 9,360,000

The payment that is due August 2024 is at the 2019 permit contribution rate. That amount is deducted from the totals shown above and the difference is divided by four (years remaining of permit term) to arrive at the new annual rate. The 2024 annual funding levels of:

- Puget Sound Status and Trends \$1,205,788 (\$0.25 per person in Puget Sound)
- Lower Columbia Status and Trends \$184,661 (\$0.33 per person in Lower Columbia)
- Effectiveness Studies and Source ID \$1,964,999 (\$0.37 per person in western Washington)

Western Permit condition S8.C requires Permittees who choose not to participate in SAM, via either or both S8.A and/or S8.B, to conduct stormwater discharge monitoring. The SWG's 2010 recommendation was that all Permittees be required to participate, but Ecology decided that the Permits should include an alternative option. In the 2019 Permit, one Phase I Permittee chose condition S8.B.1.c.

8.9. S9 - Reporting Requirements

Ecology proposes to retain the same timing for Annual Reports for the 2024-2029 Permit term, which is a report for the previous calendar year to be submitted by March 31. The first year Annual Report due by March 31, 2025, will cover the period from January 1, 2024, through December 31, 2024. Permittees will report on implementation of the continuing programs required by the 2019 Permits and any new requirements due or implemented as required by the 2024 Permits.

The records retention requirement is clarified to include the timeframe of the permit expiration date as the starting point for the five year of record retention of permit and SWMP documents.

8.9.1. Annual Report Appendices

Ecology applies the following list of objectives when developing the draft Annual Report appendices:

1. Track the compliance status of Permittees;
2. Gather information to improve Permits;
3. Identify needs for technical assistance;
4. Identify successful outcomes of program for the public;
5. Help Permittees coordinate internally; and
6. Gather meaningful quantitative information statewide.

Because of the variation in requirements and implementation schedules, Ecology provides separate Annual Reports for cities, towns and counties that are continuing Permittees (Appendix 3) and those that are New Permittees (Phase II only, Appendix 5). The Annual Report for Secondary Permittees (Appendix 4) is intended both for continuing Secondary Permittees and for New Secondary Permittees, as the deadlines are tied to the initial Permit coverage date. The Phase I Permit also has an Annual Report for the Ports (Appendix 5).

The draft appendices include questions that Ecology intends to address using the six objectives listed above as well as addresses early input received on the Annual Report questions. The number of questions with numerical answers is reduced, although some remain as indicators of compliance and for reporting statewide outcomes. There are a few more questions requesting summaries of activities intended to provide information on meaningful successes and outcomes, needs for technical assistance, and opportunities to improve the Permits.

8.10. General Conditions

General Conditions describe permit conditions that are similar across other NPDES and State Waste Discharge Permits issued by Ecology and pertain to basic permit implementation.

No significant changes proposed.

8.11. Definitions and Acronyms

Ecology's revisions to the Definitions section of the Permits reflect objectives of improving consistency across the Municipal Stormwater General Permits, simplifying and clarifying language, and improving the accuracy of definitions of the terms as used in the Permits. Specific edits proposed to Definitions include the following types of changes:

1. Addition of terms and definitions new to the Permits.
2. Correction of a previous definition to match the use of the term in the Permits.
3. Edits for consistency with other NPDES stormwater general permits, or for consistency across all three Permits.

Ecology lists the proposed revised terms below according to the type of change.

8.11.1. Addition of terms and definitions new to the Permits.

A. Proposed changes to all three Permits

Arterial roads is added for its use in stormwater management for existing development. The proposed definition is from Washington State Department of Transportation's glossary.⁸¹ Proposed definition:

Arterial road means a road or street intended to move high volumes of traffic over long distances at high speed, with partial control of access, having some intersections at grade. A major arterial connects an interstate highway to cities and counties. A minor arterial connects major arterials to collectors. A collector connects an arterial to a neighborhood (a collector is not an arterial). A local access road connects individual residences to a collector.

Overburdened Communities was a definition added in the 2019 permit but was adapted from the US EPA definition. The proposed definition for the 2024 permits is taken from the Washington State *Healthy Environment for All Act* (HEAL Act).⁸² The HEAL act definition for overburdened communities refers to several other terms that are defined in the Act (i.e. "vulnerable populations" and "highly impacted community"), the proposed definition for the 2024 Permits brings those definition together as one, which make for a long definition, but avoids having to refer the Permittee elsewhere or add multiple terms for essentially one definition. Proposed definition:

Overburdened Communities means a geographic area where "vulnerable populations" face combined, multiple environmental harms and health impacts, and includes, but is not limited to, "highly impacted communities."

"Vulnerable populations" means population groups that are more likely to be at higher risk for poor health outcomes in response to environmental harms, due to:

Adverse socioeconomic factors, such as unemployment, high housing and transportation costs relative to income, limited access to nutritious food and adequate health care, linguistic isolation, and other factors that negatively affect health outcomes and increase vulnerability to the effects of environmental harms; and sensitivity factors, such as low birth weight and higher rates of hospitalization.

"Vulnerable populations" includes, but is not limited to:

- Racial or ethnic minorities;

- Low-income populations;

- Populations disproportionately impacted by environmental harms; and

- Populations of workers experiencing environmental harms.

"Highly impacted community" means a community designated by the Department of Health based on cumulative impact analyses or a community located in census tracts that are fully or partially on "Indian country" as defined in 18 U.S.C. Sec. 1151.

PCBs and PFAS are added to the definitions.

Qualified Personnel is an existing term in the permits that is proposed to be updated for clarification on how 'volunteers' can be qualified – through a professional certification which may be a Permittee-designed inspection training program.

Qualified third party definition is added for the provision that allows a qualified third party to conduct long-term O&M inspections of private stormwater BMPs/facilities regulated by the Permittee. Proposed definition:

Qualified Third Party means someone who has had professional training in the aspects of stormwater management for which they are responsible but are hired by private entities and not under the functional control of the Permittee. Qualified Third Parties may be contractors or consultants.

The definition for Stormwater Action Monitoring (SAM) was updated to be inclusive of eastern WA and added to the eastern permit. Proposed definition:

Stormwater Action Monitoring (SAM) is the regional stormwater monitoring program for Washington State. This means a stormwater-focused monitoring and assessment program consisting of these components: status and trends monitoring in small streams and marine nearshore areas, stormwater management program effectiveness studies, and source identification projects. The priorities and scope for SAM are set by a formal stakeholder group that selects the studies and oversees the program's administration.

Urbanized Area was updated to align with EPA's updated rule to clarify US census' change to the definition for the 2020 Census and changed to Urban Area.

B. Proposed changes to Eastern Washington

Definitions are added to Appendix 1 for consistency and to address proposed updates and removed from the permit's definitions section if the permit does not use the term.

Regulated Small Municipal Separate Storm Sewer System is a term that is used in S1 to determine which municipalities are required to have permit coverage. It is a term defined in the western Phase II Permit, but was not in the eastern, proposed to be included for consistency and clarity. Proposed definition:

Regulated Small Municipal Separate Storm Sewer System means a Municipal Separate Storm Sewer System which is automatically designated for inclusion in the Phase II stormwater permitting program by its location within an Urban Area, or by designation by Ecology, and is not eligible for a waiver or exemption under Section S1.C.

Regulatory Threshold is proposed to be removed and will be replaced by the threshold now proposed in Appendix 1.

Tributary Conveyance is added to support proposed updates in the IDDE mapping requirements regarding tributary conveyances to 24 inch outfalls and is defined as pipes, ditches, catch basins, and inlets owned or operated by the Permittee and designed or used for collecting and conveying stormwater.

9.0 Appendices

The appendices - where the content is similar or matches - are reordered for consistency across all three Permits.

Table 1: Proposed order of Appendices for 2024 Permits

Appendix Title	Phase I Appendix #	WWA Phase II Appendix #	EWA Phase II Appendix #
Minimum Technical Requirements for New Development and Redevelopment	1	1	1
Total Maximum Daily Load Requirements	2	2	2
Annual Report Questions for Cities and Counties	3	3	3
Annual Report Questions for Secondary Permittees	4	4	4
Annual Report Questions for the Port of Seattle and the Port of Tacoma	5		
Annual report Questions for New Permittees		5	5
Street Waste Disposal	6	6	6
Determining Construction Site Sediment Damage Potential	7	7	
Businesses and Activities that are Potential Sources of Pollutants	8	8	
Stormwater Discharge Monitoring	9	9	9
Equivalent Programs for Runoff Controls for New and Redevelopment and Construction Sites	10	10	10
Annual Contribution Amounts to Stormwater Action Monitoring Collective Funds	11	11	8
Stormwater Management for Existing DevelopmentManagement for Existing Development	12	12	
Adaptive Management Requirements	13		
IDDE Reporting Data and Format	14	13	7

9.1. Appendix 1 – Minimum Technical Requirements for New Development and Redevelopment

See additional discussion in section *Controlling Runoff from New Development, Redevelopment and Construction Sites*.

Appendix 1 is the same in the Western Washington Permits. Eastern Washington's minimum technical requirements are different from western Washington due to geographic and climatic differences in the regions.

9.1.1. Proposed changes to Eastern Washington Appendix 1

Ecology proposes to eliminate the one-acre threshold, and instead proposes project thresholds that are based on the thresholds currently contained in the 2019 Permit Appendix 1 requirements for Runoff Treatment (Core Element #5) and Flow Control (Core Element #6) for new development and redevelopment, found in Appendix 1. Project thresholds for new development and redevelopment proposals are as follows:

A. Appendix 1 - Threshold for When the Permittee Must Regulate the Project (and Project Thresholds must be considered by the Developer)

Development projects that discharge stormwater, either directly or indirectly, into an MS4 owned or operated by the Permittee.

B. New Development Project Thresholds

The following new development shall comply with all Core Elements, although the Core Elements have additional thresholds that must be reviewed to determine when BMPs are required to comply with the Core Element.

- Development Projects that result in 5,000 square feet, or more, of new plus replaced hard surfaces; or
- Convert $\frac{3}{4}$ acre, or more, of vegetation to lawn or landscaped area; or
- Convert 2.5 acres, or more, of native vegetation to pasture.

Notes:

1. The definition for "hard surface" will be added to the Glossary.
2. Core Elements 5 and 8 must be considered for (i.e. the Core Element Thresholds must be evaluated for) the new and replaced hard surfaces and converted vegetation areas.
3. Core Element 6 must be considered for the new hard surfaces and converted vegetation areas.
4. Core Element 8 is proposed as a new Core Element for Wetland Protection (see details below)

C. Redevelopment Project Thresholds

Redevelopment is proposed to be clarified as Sites that have 35% or more of existing hard surfaces.

Project thresholds are proposed to address new and replaced hard surfaces separately. The first step looks at new hard surfaces and converted vegetation areas:

- Redevelopment projects that result in 5,000 square feet, or more, of new hard surfaces; or
- Convert $\frac{3}{4}$ acre or more vegetation to lawn or landscaped area; or
- Convert 2.5 acres or more of native vegetation to pasture.

Initially, all Core Elements apply to new hard surfaces and converted vegetation areas.

Next, determine if Core Elements apply to the replaced hard surfaces. The thresholds look at road-related project thresholds and other redevelopment projects separately.

Road projects:

- Add 5,000 square feet or more of new plus replaced hard surfaces, AND
- New plus replaced hard surfaces total 50% or more of the existing hard surfaces within the Site.

Core Elements related to Runoff Treatment (Core Element 5) and Wetland Protection (Core Element 8) will apply to the new and replaced hard surfaces, but the Core Element for Flow Control (Core Element 6) will only apply to the new hard surfaces.

Other Redevelopment Projects:

Other types of redevelopment projects shall comply with all Core Elements if they meet either of the following two thresholds.

- Threshold 1:
 - The total of new plus replaced hard surfaces is 5,000 square feet or more, and
 - I. For commercial or industrial projects: the valuation of the proposed improvements, including interior improvements, exceeds 50% of the assessed value of the existing Project Site improvements.
 - II. For all other projects: the valuation of the proposed improvements, including interior improvements, exceeds 50% of the assessed value of the existing Site improvements.
- Threshold 2 (for commercial or industrial sites only):
 - The new plus replaced hard surfaces total 50% or more of the existing hard surfaces within the Site.

Notes:

1. The definition for “hard surface” will be added to the Glossary.
2. If either of the above thresholds are met, Core Elements 5 and 8 must be considered for (i.e., the Core Element Thresholds must be evaluated for) the new and replaced hard surfaces and converted vegetation areas.
3. Core Element 6 must be considered for the new hard surfaces and converted vegetation areas.
4. If Core Elements 5 and 6 apply per the Project Thresholds, then the Core Element Thresholds must be evaluated to determine if Runoff Treatment and/or Flow Control BMPs are required to comply with the Core Element requirements.
5. Core Element 8 is proposed as a new Core Element for Wetland Protection (see details below).

Proposed new development and redevelopment projects that meet or exceed the proposed thresholds above would require a Stormwater Site Plan review by the Permittee under the conditions of the Eastern Washington Permit and the Core Elements of Appendix 1. Note that it is possible for a project that triggers the thresholds for Core Elements #5 and #6 per the Project Thresholds to not need Runoff Treatment BMP(s) or Flow Control BMP(s) to be in compliance with Core Elements #5 and 6 when evaluating the thresholds within the Core Elements. Core Elements #5 and #6 are proposed to include Core Element thresholds that are similar to current requirements but updated to address the proposed project thresholds.

While this proposed change is significant, there are several factors that will direct the requirements to the types of projects that will have the most adverse impacts to receiving waters. These factors are found in the thresholds of the Core Elements themselves. See the draft permit and manual sections for details on the proposed updates to the Core Element thresholds.

D. Addition of Core Element for Wetland Protection

We are proposing a new Core Element #8 as part of the formal draft Permit. The new Core Element 8 will provide protections to wetlands from new development and redevelopment projects. The proposed requirements in Core Element 8 consolidates some of the language currently included within existing Core Elements, as well as updates them to current wetland protection standards appropriate for eastern Washington. Core Element 8 includes physical and water quality protections for wetlands, including source control and erosion control BMPs, which are currently pieces from other Core Elements.

E. Pavement Maintenance and Underground Utility Project Exemptions Clarifications

In order to clarify when and how the pavement maintenance and underground utility project exemptions in Appendix 1 should be applied, we propose language edits statewide to ensure project scope does not exceed the intention of these limited exemptions. The exemptions may only be used if the only purpose of the project is for pavement maintenance or underground utility work (depending on the exemption). The entire project must be for the sole purpose of maintaining pavement area or installing or maintaining an underground utility. Redevelopment work or changing the characteristic of the roadway are not considered pavement maintenance, and do not qualify for the pavement maintenance exemption. Underground utility work that is part of a new or redevelopment project that also includes other disturbed areas does not qualify for the underground utility project exemption.

F. New Definitions

Several definitions are proposed to be added or updated to complement the proposed revised thresholds.

Hard Surface is a new term proposed for the Eastern Washington Permit; it replaces the use of Impervious Surface in the Project Thresholds, and is a term used to address the use of permeable pavement as a surface type. Impervious Surfaces are a subset of Hard Surfaces and are still used in the Core Element #6 Threshold. Permeable pavement (and although not widely used, vegetated roofs) are BMPs that are allowed and used in Eastern Washington and are examples of Hard (but not Impervious) surfaces. This update provides a more complete evaluation of proposed surfaces in new development and redevelopment.

Hard surface means an impervious surface, a permeable pavement, or a vegetated roof.

The current thresholds in Core Elements #5 and #6 are based on the extent of impervious surfaces or pollution generating impervious surfaces that were created and/or replaced as part of the proposed new or redevelopment project. The term hard surface generally replaces the use of impervious surface in the project thresholds.

Permeable pavements should result in less surface runoff and should increase the amount of water discharged to the ground. However, because of concerns about ground water pollution, and the need to protect ground water quality, Ecology proposes to use the same square footages of “hard surfaces” as was previously used for “impervious surfaces” to trigger Runoff Treatment requirements (i.e. Core Element 5).

Pollution-Generating Hard Surface, pervious surface, and converted vegetation areas: These are also newly defined terms to help make the regulatory intent clear. Note the overlaps and shuffling of surfaces into new categories. Hard surfaces can be impervious or permeable. Permeable pavements are pervious surfaces, but also hard surfaces.

We also propose to replace “**impervious surface**” with “**effective impervious surface**” in the Core Element #6 (Flow Control) Core Element Thresholds. Effective impervious surfaces are those impervious surfaces that are connected via sheet flow or discrete conveyance to a drainage system. Impervious surfaces are considered ineffective if:

1. The runoff is fully dispersed in accordance with BMP F6.42: Full Dispersion; or
2. Residential roof runoff is infiltrated in accordance with (new) BMP T5.10A: Downspout Full Infiltration; or
3. All runoff from the impervious surface is infiltrated (i.e. calculations show that the 100-yr, 3-hr storm OR the 100-yr, 72-hr storm, whichever is larger, is fully infiltrated).

By adding the use of “effective impervious surface” rather than “impervious surface” to the Core Element #6 Thresholds, it eliminates unnecessarily requiring Flow Control BMPs for runoff from surfaces that are shown to fully infiltrate.

G. Design Storm Standard for Full Infiltration

Ecology proposes the 100-yr, 3-hr storm or the 100-yr, 72-hr storm, whichever is larger, as the design storm standard to describe when a project is designed so that “all runoff is considered fully infiltrated” and, therefore, not subject to Permit requirements. We wanted to identify a storm event that a Permittee could model that would be an equivalent to the full runoff file that we use with WWHM (in western Washington). The 3-hr and 72-hr storms typically have more volume than the 24-hr storm.

There are hyetographs for the 3-hr and 72-hr storms in the SWMM EW that the designer can use to model the project to determine if they achieve full infiltration.

9.1.2. Proposed changes to Western Washington Appendix 1

See additional discussion in section Controlling Runoff from New Development, Redevelopment and Construction Sites (PH I: S5.C.5; PH II: S5.C.6) of this Fact Sheet.

Proposed language for Appendix 1 includes those requirements, definitions, and thresholds that Ecology intends the Permittees to adopt into local codes or other enforceable documents and apply to new development and redevelopment projects.

Ecology reviewed the standards and requirements of Appendix 1 and is proposing significant changes to all three permits. The proposed changes will provide clarifications to ensure standards are implemented as intended and update the standards and thresholds to capture more projects that have potential to pollute waters of the state. The following summarizes the proposed changes to Appendix 1 in Western Washington.

A. Redevelopment Thresholds

Ecology proposes to enhance the redevelopment project thresholds within Appendix 1 that determine which Minimum Requirements apply to replaced surfaces for road and commercial/industrial projects. These proposed changes are intended to provide more Runoff Treatment to projects, by requiring the project proponent to consider the new plus replaced hard surfaces with the potential to transport pollution from roads or commercial and industrial sites.

B. Road related projects

Currently, for road projects, all Minimum Requirements apply to the new and replaced hard surfaces if the project adds 5,000 square feet of new hard surfaces AND the new hard surfaces add 50% or more to the existing hard surfaces within the Site.

We propose to update this threshold so that, for road projects, all Minimum Requirements apply to the new and replaced hard surfaces if the project adds 5,000 square feet of new plus replaced hard surfaces AND the new plus replaced hard surfaces total 50% or more of the existing hard surfaces on the Site (underline shows the new language).

C. Commercial or industrial Sites

Currently, for projects on commercial or industrial Sites, all Minimum Requirements apply to the new and replaced hard surfaces if the project adds 5,000 square feet of new plus replaced hard surfaces AND the value of the proposed improvements (including interior) exceeds 50% of the assessed or replaced value of the existing Project Site improvements.

We propose to add to the existing redevelopment thresholds that all Minimum Requirements apply to the new and replaced hard surfaces if, in addition to the current threshold, the new plus replaced hard surfaces total 50% or more of the existing hard surfaces within the Site.

D. Threshold Discharge Area (TDA) Threshold within Minimum Requirement 6 (Runoff Treatment)

Threshold Discharge Areas (TDA) are areas within a project site draining to a single natural discharge location or multiple natural discharge locations that combine within one quarter mile downstream; this is a defined term in the permit that helps to determine when Runoff Treatment and Flow Control BMPs are appropriate for a proposed project site.

Currently, the TDA threshold for Minimum Requirement 6 (Runoff Treatment) states that if there is 5,000 square feet or more of pollution-generating hard surfaces within a TDA (new and/or replaced, as determined in the Project Thresholds), then that TDA requires Runoff Treatment BMP(s). We propose to update the TDA threshold from 5,000 square feet to 2,000 square feet or more of pollution generating hard surfaces.

E. Pavement Maintenance and Underground Utility Project Exemptions Clarifications

In order to clarify when and how the pavement maintenance and underground utility project exemptions in Appendix 1 should be applied, we propose language edits statewide to ensure project scope does not exceed the intention of these limited exemptions. The exemptions may only be used if the only purpose of the project is for pavement maintenance or underground utility work (depending on the exemption). The entire project must be for the sole purpose of maintaining pavement area or installing or maintaining an underground utility. Redevelopment work or changing the characteristic of the roadway are not considered pavement maintenance, and do not qualify for the pavement maintenance exemption. Underground utility work that is part of a new or redevelopment project that also includes other disturbed areas does not qualify for the underground utility project exemption.

9.2. Appendix 2 – Total Maximum Daily Load Requirements

See discussion of Special Condition S7 *Total Maximum Daily Load Requirements*.

9.3. Appendix 3 – Annual Report Questions for County, Town and City Permittees

See discussion of Special Condition S9 *Reporting Requirements*.

9.4. Appendix 4 – Phase II Only - Annual Report Questions for Secondary Permittees

See discussion of Special Condition S9 *Reporting Requirements*.

9.5. Appendix 5 - Phase II Annual Report Form for New Permittees (Eastern and Western Washington)

See discussion of Special Condition S9 *Reporting Requirements*.

9.6. Appendix 5 - Phase I Only – Annual Report Questions the Port of Seattle and the Port of Tacoma

See discussion of Special Condition S5.C.6.

9.7. Appendix 6– Street Waste Disposal

Updates proposed to match updates to the corresponding appendix in the Stormwater Management Manuals. Proposed updates include clarifications that this appendix applies to street waste from street sweeping activities and BMPs for wet weather cleaning.

9.8. Appendix 7 – E.WA Phase II only - IDDE Reporting Data and Format

This appendix is provided in all three Permits, but with different appendix numbers. It is included to document the information required to submit as well as the format for the Annual Report submittal, as described in the IDDE section. No significant changes proposed.

9.9. Appendix 7 – Western Washington only - Determining Construction Site Sediment Damage Potential

No changes proposed for Appendix 7.

9.10. Appendix 8 – E.WA Phase II only – Annual Contribution Amounts for Regional Monitoring to Stormwater Action Monitoring Collective Funds

This is a new appendix for the eastern Permit and is proposed to be added to match the option proposed in S8 – see discussion on proposed options. All Permits have the same Appendix, this is Appendix 11 in the western Permits.

9.11. Appendix 8 – Western Washington only - Businesses and Activities that are Potential Sources of Pollutants

This appendix provides the 1987 SIC and 2017 NAICs industry supersector codes. Ecology is only using these groups as a general description of the types of businesses that should be inspected under S.5.C.8 in both the Phase I and Phase II Permits. Group descriptions are intended to closely align with NAICs industry supersector groups listed on the Bureau of Labor Statistics website⁸³. No changes proposed for Appendix 8.

9.12. Appendix 9 - Stormwater Discharge Monitoring

This section in both the Phase I and Phase II Permits defines the approach for meeting individual stormwater discharge monitoring requirements for Permittees in western Washington who choose not to participate in SAM, the regional stormwater monitoring program. It is a new appendix for the eastern Permit, as this is a new option proposed for the 2024 permit term. See fact sheet language for S8. Monitoring and Assessment for more information.

9.12.1. Changes from the 2019 Permits:

This appendix was updated to reflect changes in water quality criteria for bacteria and updated laboratory methods.

Ecology has continued to review scientific study findings and has determined that the following new parameters should be added to nutrients screening: ammonia and total nitrogen. Total nitrogen may replace total Kjeldahl nitrogen monitoring. This change allows Ecology and stormwater managers to track the fraction of organic nitrogen. Based on Ecology's analysis of Phase I discharge monitoring data collected for the 2007 Permit, organic nitrogen makes up most of the nitrogen in urban stormwater in this region. Tracking all forms of nitrogen (organic, nitrate, nitrite, ammonia) is important for stormwater management.

9.13. Appendix 10 –Equivalent Programs for Runoff Controls for New and Redevelopment and Construction Sites

The draft Permits require Permittees to continue to implement the ongoing programs established during the current (2019) Permit term. For western Permittees, Appendix 10 describes the needed changes to a local program adopted under the 2019 Permits. Appendix 10 is new for EWA Phase II and is a placeholder in case of Ecology making an SWMMEW equivalency determination of a submitted eastern WA regional manual. Phase II Permittees are not required to submit their local programs to Ecology for review and approval. Phase I Permittees are required to submit their local programs to ensure equivalency with Appendix 1 and the SWMMWW. The eastern WA equivalency process is new for the 2024 permit and follows the Phase I process.

In the Phase I Permit, Appendix 10 has three Parts.

- Part 1 - lists of Ecology-approved local programs that meet the requirements for controlling runoff.
- Part 2 – lists the significant changes to Appendix 1.
- Part 3 – is the placeholder section which will list the local programs approved to meet the 2024 (or Part 2) local program requirements.

9.14. Appendix 11 – Western Washington only - Annual Contribution Amounts for Regional Monitoring to Stormwater Action Monitoring Collective Funds

See fact sheet language for S8. Monitoring and Assessment for more information. This appendix is proposed to be updated to reflect 2022 populations and SAM contribution rates for the 2024-2029 permit term. The appendix now includes a contribution amount for eastern Permittees as an option to meet S8 requirements. This same appendix is included in the eastern Permit as Appendix 8.

9.15. Appendix 12 – western Permits only- Stormwater Management for Existing Development (SMED)

This appendix accompanies the SMED permit program in the Phase I (formerly Structural Stormwater Controls) and new proposed program for WWA Phase II. For general information about Appendix 12 and details about changes to the Phase I Appendix 12, see the SMED sections of this Fact Sheet.

Ecology requires Permittees to include an updated list of planned individual projects scheduled for implementation during the term of the Permit with their Annual Reports. The proposed Appendix provides a standardized reporting format that allows for transparent benefit and project benefit calculations and limited project details, such as costs and funding sources.

Ecology intends the SMED Program's defined level of effort as reflected in Phase I required Program Points and WWA Phase II required 'acres managed' to achieve the following goals, which maintains and builds on the 2019 Phase I permit program:

- Allow for comparisons of runoff treatment and hydrological benefits. Benefits from LID BMPs are quantified for hydrological benefit separately from flow control facilities.
- Allow for comparisons of project types across jurisdictional landscapes. This acknowledges that Washington's Phase I Permittees consist of cities and unincorporated counties.
- Provide a standardized means to quantify the benefits each project and each jurisdiction achieves.
- Incentivize strategic stormwater investments.
- For each Phase II Permittee, list the required level of effort for the permit term.
- Count the following types of projects:
 - Regional facilities that provide hydrologic or treatment benefit for existing MS4 discharges that is not otherwise required. Regional facilities that do not have a system to credit new development and redevelopment projects will fully qualify. Regional facilities that provide for use of fee-in-lieu, minimum technical requirement transfer, or other new/redevelopment-benefitting program, only partially qualify under the SMED Program; the portion of the regional facility that is preserved to address existing MS4 service area (such as roadways) may be counted in the SSC program.
 - The retrofit of existing MS4 runoff by providing additional hydrologic or treatment capacity in a stormwater facility being constructed as part of a new or redevelopment project (i.e., those required under a development project approval but also providing additional new treatment or flow control). The portion of the project serving the existing area, not otherwise required to be addressed, will qualify for the SSC Program.

- Projects not directly related to stormwater (i.e., not driven by stormwater capital planning) but providing stormwater benefits. This includes forest protection (i.e., acquisition), forest conservation easements, forest cover restoration, and riparian buffer restoration.
- Operations and maintenance projects with large capital construction costs and projects that go beyond Permit O&M requirements (ex. whole system pipeline cleaning, or intensive facility maintenance/upgrades).
- Source control work that goes beyond source control Permit requirements.
- Projects that promote watershed collaboration.

9.16. Appendix 13 – W.WA Phase II only - IDDE Reporting Data and Format

This appendix is provided in all three Permits, but with different appendix numbers. It is included to document the information required to submit as well as the format for the Annual Report submittal, as described in the IDDE section. Minor edits to the schema are proposed to better match the reporting form. No significant changes proposed.

9.17. Appendix 13 – Phase I only- Adaptive Management Requirements

Appendix 13 was added to the Phase I Permit during the Permit modification in 2016. The appendix incorporates requirements in response to a significant long-term MS4 adaptive management response effort under Special Condition S4.F.3. Appendix 13 is applicable to one Permittee: The City of Seattle.

Ongoing relevant and applicable aspects of the Source Control Implementation Plan (SCIP) are municipal stormwater adaptive management response actions described in Appendix 13 of the Permit. This Permit also includes the requirement to submit a SCIP update to reflect an updated assessment of data and priorities and identify additional projects for the 2027 – 2032 timeframe.

Reference Document Table

The previous permit had misprinted the Ecology approved QAPP date as being finalized in December 2017, but it was signed in August 2018. This correction has been made throughout Appendix 13 where applicable.

Links have been updated for the online locations of the Source Control Implementation Plan (SCIP) and Lower Duwamish Waterway Source Control Strategy.

Source Tracing & Sampling Program

All outfalls marked as requiring sampling to fill data gaps in the previous permit term have been sampled, and currently no additional data gap sampling is required and the column is being removed from Tables 1 and 2. To accommodate potential future discoveries of unknown discharge locations which would constitute new data gaps, Ecology has added that source tracing shall be performed to fill data gaps if a previously unidentified discharge location owned or operated by the Permittee is found. Ecology has changed “shall” to “may” with regards to use of trained canines for source tracing as the previous pilot program has ended but could be brought back in the future.

Effectiveness Monitoring Program

For the purposes of clarification, Ecology amended the first bullet of the minimum effectiveness monitoring program elements to specify that sampling will be done at locations noted in Tables 1 and 2 as Effectiveness Monitoring Outfalls and using methodology per the Ecology-approved QAPP. Ecology also clarified in the second bullet that the EIM data submittal requirement is associated with the effectiveness monitoring program, not the source tracing sampling. The permittee may choose to submit the source tracing data to EIM, but it is not a permit requirement.

Operations & Maintenance

Ecology has added language to requirement 2.a where compliance will be determined by the presence of an established program designed to conduct weekly sweeping and achieve at least 95% completion of weekly sweeping. This change aligns with compliance standards established in the Phase I Permit Operations and Maintenance program (S5.C.10). In a standard 52-week year, this would allow two weeks to be missed without triggering a non-compliance. Ecology has also removed requirement 2.c as annual reporting on solids accumulation in the maintenance manholes shows 0% in full history of the monitoring program and not informative to the program's overall impacts.

Structural Controls

There were no content changes to section, however the format was changed from table format to bullets to be more accessible for screen readers.

Annual Prioritization and Reporting

For the purposes of clarification, Ecology added “and Reporting” to the title of this section “Annual Prioritization and Reporting” since the section addresses both aspects. Ecology clarified the uses of source tracing and effectiveness monitoring sampling data for the purposes of the annual report and prioritization assessments.

Source Control Implementation Plan Update:

No significant changes were made to this section.

Modifications to Table 1 and 2 Outfalls

To update the Appendix 13 Tables 1 and 2 to better align with current nomenclature and sampling activities, the following changes have been made:

- Elimination of Sample to Fill Data Gap column – samples have been taken at the previously identified outfalls and no longer represent data gaps.
- Removal of Head of Slip 2 and S Garden St outfalls from the Effectiveness Monitoring program due to poor representation of the contributions from Seattle’s MS4.
 - Head of Slip 2 - Seattle contributes only 1 acre of the basin drainage and is substantially not MS4.
 - S Garden St - Seattle contributes only 1 of the 12 acres in the drainage basin. The sampling location has been a Filterra system within a catch basin as it is the only location which collects road runoff from S Garden St that flows through Seattle’s MS4. The pipe is also too small for sediment traps.
- Name Change - Removal of “SD” from the three outfalls identified as Duwamish Substation SD #1, #2, and #3 in Table 1 as the column heading already includes “SD” and applies to all outfalls.
- Name Change - Herrings House SD has been renamed South Operations Center. This was changed after Seattle purchased the property and renamed it.
- Removal – North Boeing Field and associated footnote has been removed from Table 1. It has been decommissioned and no longer carries flow or has an outfall. This was verified in 2015 through CCTV inspection.
- Addition – 16th Ave S (West) has been added to Table 2. This drainage basin was created during the South Park Bridge work and was installed in 2017, discharging approximately 2 acres of Seattle runoff from roadway catch basins into a King County stormwater system on the southeastern side of the South Park Bridge.
- Table 2 footnote addition – A new footnote (a) has been added to provide context for the drainage associated with S Garden St.

9.18. Appendix 14 – Phase I only – IDDE reporting data and format

This appendix is provided in all three Permits, but with different appendix numbers. It is included to document the information required to submit as well as the format for the Annual Report submittal, as described in the IDDE section. No significant changes proposed.

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- ² Booth, D., A. Roy, B. Smith, and K. Capps. 2016. Global perspectives on the urban stream syndrome. *Freshwater Science* 35(1):000-000. [1]
- ³ Alberti M., D. Booth, K. Hill, B. Coburn, C. Avolio, S. Coe, and D. Spirandelli. 2007. *The impact of urban patterns on aquatic ecosystems: An empirical analysis in Puget lowland sub-basins*. *Landscape and Urban planning* 850: 345-361. [1]
- ⁴ Booth, D. 1991. Urbanization and the natural drainage system – impacts, solutions, and prognoses. *Northwest Environmental Journal* 7:93-118. [1]
- ⁵ DeGasperi C., R.W. Sheibley, B. Lubliner, C.A. Larson, K. Song, and L.S. Fore. 2018. Stormwater Action Monitoring Status and Trends Study of Puget Lowland Ecoregion Streams: Evaluation of the First Year (2015) of monitoring Data. Prepared by King County in collaboration with the Washington Department of Ecology, U.S. Geological Survey, and the Puget Sound Partnership. Science and Technical Support Section, Water and Land Resources Division, Seattle, Washington. [9]
- ⁶ Sargeant, D. and Ruffner, J. 2017. Bacteria results for nearshore marine areas in Puget Sound, 2010-2015: Regional Stormwater Monitoring Program. Washington State Department of Ecology. Olympia, WA. Publication No. 17-03-004. [3]
- ⁷ Song, K., B. Lubliner. 2018. Technical Memorandum: Additional analyses of the SAM Marine Nearshore Sediment Monitoring data. Stormwater Action Monitoring Program at Washington State Department of Ecology. [2]
- ⁸ Lanksbury J., B. Lubliner, M. Langness, and J. West. 2017. *Stormwater Action Monitoring 2015/16 Mussel Monitoring Survey*. Washington Department of Fish and Wildlife Report Number FPT 17-06. [9]
- ⁹ Langness, M. and J. West. 2020. *Stormwater Action Monitoring 2017/18 Mussel Monitoring Survey*. Washington Department of Fish and Wildlife Report Number FPT 20-13. [9]
- ¹⁰ Langness, M. D. Nordstrom, and J. West. 2022. *Stormwater Action Monitoring 2019/20 Mussel Monitoring Survey*. Washington Department of Fish and Wildlife Report Number FPT 22-05. [9]
- ¹¹ Nickelson, A. 2018. Verbal and written communication. Washington Department of Agriculture, Olympia, WA. Final report in publication process. [11]
- ¹² Scholz, N. et al. 2007. Recurrent Die-offs of adult coho salmon returning to spawn in Puget Sound lowland urban streams. *PLoS ONE* 6: e28013. [1]
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